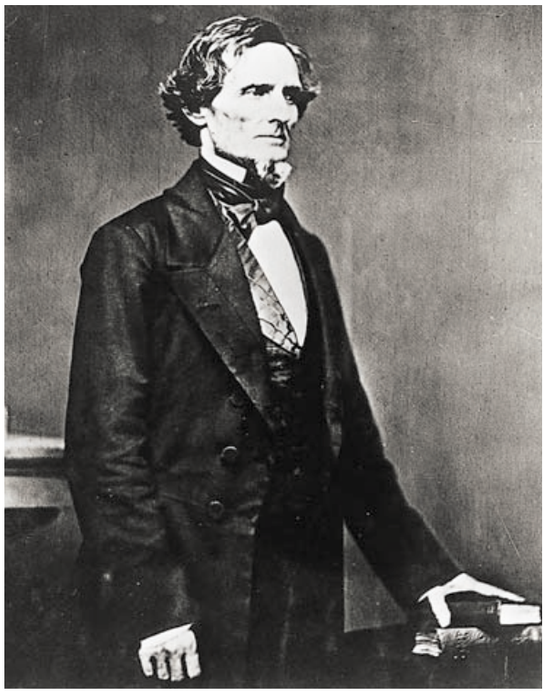
CAPTAIN M. C. MEIGS, ENGINEER IN CHARGE

The Capitol extension project had been under way less than two years when it was transferred to the War Department. It was not immediately clear how the architect would function within the new arrangement, but Walter would no longer engage in business dealings, contract negotiations, or the hiring of any workmen except those in his drafting room. This aspect of the change was not altogether unwelcome, as he considered the business part of the job bothersome. Glad to be rid of that headache, Walter looked forward to spending more time engaged in purely architectural pursuits. He could not have easily foreseen that from his drafting board he would watch the Capitol extension project veer from the course he and the Fillmore administration had charted for it.

The newly appointed secretary of war, Jefferson Davis, was responsible for taking the extension project from the Department of the Interior and placing it under the authority of the War Department. His early role in the matter ended when he quit the Senate on September 23, 1851, to run (unsuccessfully) for governor of Mississippi. Davis' interest in the Capitol extension was undiminished by his two-year absence from Washington, however, and soon after joining President's Pierce's cabinet on March 7, 1853, he maneuvered the project into his department. To manage day-to-day affairs, Davis appointed Montgomery C. Meigs engineer in charge. Meigs was a captain in the Army Corps of Engineers, the government bureau most experienced at dealing with large construction projects. At the same time, Davis put Meigs at the head of the Washington Aqueduct and the Patent Office extension, thus giving the engineer charge of three of Washington's most ambitious public ventures. Both graduates of West Point, Davis and Meigs saw eye-to-eye on most issues, and, despite the obvious difference in rank, they were compatible and sympathetic colleagues.

At age 36 Meigs took the reins of the Capitol extension project with gusto, immersing himself in the study of architecture, acoustics, heating, ventilation, and decorating. Included in the orders he received from the secretary of war were instructions to pay close attention to the practical aspects of the new legislative chambers. The overriding objective was to provide healthy chambers where the nation's legislators could hear and speak with ease. Inspections of acoustically successful assembly rooms and visits to the marble quarry in Massachusetts were authorized in the orders. Meigs was instructed to make a thorough examination of the

The Capitol with a New Dome (Detail)
by Thomas U. Walter, ca. 1855
The Athenaeum of Philadelphia



Jefferson Davis

Mathew Brady Photograph, ca. 1860

Senate Historical Office

Soldier, statesman, and only president of the Confederate States of America, Davis (1808–1889) represented Mississippi in the House and Senate prior to becoming secretary of war under President Franklin Pierce in 1853. His direction of the war department was one of the few successes in an otherwise lackluster administration. Through Captain Meigs, he supervised the work on the Capitol extension and new dome, approving changes to the floor plan and encouraging a comprehensive approach to interior decorations. Davis' taste and opinions greatly influenced design decisions.

At the end of the Pierce administration Davis returned to the Senate where he chaired the Committee on Military Affairs. He defended military control of building projects in Washington and used his influence to keep Meigs in power. Davis continued to promote their plans following Meigs's removal in 1859. After Mississippi seceded from the Union in 1861, Davis left the Senate to embark on another phase of his career, one that would overshadow his contributions to the design and construction of the Capitol extension and dome.

foundations as well, because "unfavorable reports have been spread abroad." Of course, the strength of the foundations had already been well documented. Apparently motivated by a determination that the Capitol not become the laughingstock of condescending foreigners, Davis' directive is indicative chiefly of his desire for the favorable opinion of the European community.

Construction of the Capitol extension and the Patent Office extension was left to Meigs to devise as he saw fit. There could be no question about Meigs' authority or the power Davis vested in the captain of engineers:

> As upon you will rest the responsibility for the proper and economical construction of these buildings, you will consider yourself fully empowered to make such changes in the present administration as you may deem necessary, and to regulate the organization hereafter as your experience may dictate.[1]

Walter reacted silently to the change in administration. Although the recent events could hardly be viewed as a vote of confidence, neither had he been dismissed; further, the move to make William Easby the project's disbursing agent had thankfully failed. The biggest thorn in Walter's side was plucked when the president appointed Solon Borland minister to Nicaragua. With these antagonists out of the picture the prospects for peace looked good.

With the administrative changes made at the Capitol, Robert Mills, now seventy-two years old and out of work, saw an opportunity to replace Walter. At the end of Fillmore's presidency Mills presented petitions signed by members of the House of Representatives and Senate asking the president to "restore" him to the office of architect of the Capitol, a post he supposedly held in the Jackson, Van Buren, and Taylor administrations. (Mills never held such an office, nor did an office with the title of "architect of the Capitol" exist during his lifetime.) In the opening days of the new administration he wrote Pierce, Davis, and Meigs claiming that although his plans had been adopted by the Senate and approved by the president, Walter had been hired to execute them. Simple justice, Mills argued, demanded Walter's removal.[2]

Possibly Mills justified the misrepresentation as a means to put food on his family's table. When this application failed, he asked to be appointed

commissioner of public buildings. After Pierce appointed an old friend and fellow New Hampshirite Benjamin B. French to that post, Mills asked Davis to recommend him for a job in the Capitol extension drafting room. He would consider any employment because he was "without means of providing the necessary wants of my family." Davis forwarded the request to Meigs, who endorsed the letter with a stern memorandum:

> There would be manifest impropriety in employing upon the Capitol a gentleman who is a rival of the architect who made the designs & who claims the merit . . . I have seen some of Mr. Mills working drawings of the Patent Office & I should not be willing to trust to his assistance in carrying on this work. As a draftsman Mr. Mills was tried in the Engineer office & not found qualified.[3]

Captain Montgomery C. Meigs
ca. 1855

After six and a half years as supervising engineer of the Capitol, Meigs (1816–1892) left indelible marks upon the extension and new dome. From mechanical ventilation to painted decorations, from tile floors to sculptural enrichments, Meigs' imprint was seen everywhere. He came to believe that the Capitol was more a legacy than a job, and he worked tirelessly to make it as sturdy and beautiful as possible.

Meigs' most significant engineering achievement was the Washington Aqueduct, authorized in 1852 to provide the federal city and Georgetown with a municipal water system. Among its feats was the Cabin John Bridge, a 220-foot single-span masonry arch—the world's largest for more than forty years. At the beginning of the Civil War President Lincoln named Meigs quartermaster general, a crucial post that was perfectly suited to his organizational and management talents. In 1882 Meigs began construction of the Pension Building in Washington, D. C., which he designed using the Palazzo Farnese in Rome as a model. Today it houses the National Building Museum.

ALTERING THE FLOOR PLANS

By the end of May 1853, Meigs had exposed the foundations to the bottom of the footings and bored through them in various spots to allow a thorough inspection. He concluded that they were sufficient to bear the weight of the proposed structure but noted that the mortar would have dried sooner if more hydraulic lime had been used.[4] While the foundations were being reexamined, Meigs and Walter were working on significant changes to the floor plans of the extension, relocating the legislative chambers from the western half of the wings to their centers. The changes were Meigs' idea, and the plans were worked out and drawn by Walter. The engineer reported:

> The plans were prepared by the accomplished architect, Mr. Thomas U. Walter; and I am happy in being supported in his opinion, that not only will the legislative halls be better adapted to their main purpose as rooms for debate, but that the architectural beauty and the convenience of the buildings will be increased by the changes which have been made.[5]

President Fillmore had favored chambers with a western exposure to allow views of the well-tended lawn and the tree-shaded Mall. In Walter's 1851 plans the Senate chamber was designed with

twenty-five windows and the House chamber was to have twice that number. But the plans also showed that legislators going to and from their chambers would be obliged to pass through public corridors that were likely to be thronged with lobbyists and sightseers. A similar situation already existed in the old Capitol and was the source of many complaints. Meigs came up with the idea of relocating the chambers to the center of each wing, placing doors on all four walls, and surrounding them with lobbies and corridors, some of which could be made strictly private. Thus, the public could be kept at arm's length if necessary. "No one who has seen the crowds which collect in the public lobbies of the houses during the last days and nights of a session of Congress," Meigs wrote, "can fail to understand the disadvantages of this single entrance, and the great advantages of the public and private communication of the new plan."

While the new plan would improve circulation and egress, it also meant that the pleasant garden views were never to materialize: the new chambers were designed without windows. Light and air would be supplied by artificial means, challenges that perfectly suited Meigs's love of science and mechanical engineering. Every aspect of the interior environment could be mechanically controlled, freeing it from the vagaries of the outside weather. Steam-powered fans could ventilate the chambers, while gas lighting and skylights would eliminate the need for windows. However, although the power of gas and steam made it possible to design windowless chambers, Meigs failed to anticipate the psychological effect such rooms would have on future legislators. Windowless chambers and mechanical ventilation were to become the most controversial features of the Capitol extension project, hotly debated and routinely condemned well into the twentieth century.

Meigs claimed that rooms without windows were well suited for speaking and hearing. He reasoned that in winter windows separating warm air inside from cold air outside promoted descending sheets of cold drafts that were harmful to persons of "sensitive nerves" or "feeble health."[6] By preventing drafts, windowless rooms would be healthful, which, in turn, would nurture strong speaking voices. From skylights, Meigs claimed,

> we obtain a pleasanter light, ample for all useful purposes, as proved by its adoption in all the best constructed picture galleries. We also exclude the sounds of the exterior, which, saturating the air as it were, distract the attention, and even overpower the voice we wish to hear. . . . Open windows for hearing will be worse than closed ones; they not only let irregular, disturbing currents of air in, but they let the voice out. . . .[7]

In the revised plan, galleries could be placed around four sides of the chambers. Visitors would ascend to the gallery level on broad flights of marble stairs. "These stairs will be the most stately in the country," Meigs promised, "and when embellished with our beautiful native marbles will, I trust, compare favorably with any abroad." A corridor on the first floor lined with Corinthian columns was designed to run the width of the south wing, and vestibules with coupled marble columns were provided at the principal entrance to each wing on the second floor. Emphasis would be placed on architectural and decorative variety to avoid monotonous repetition.

Meigs described the new plans in terms of richness, luxury, and elegance, reflecting the administration's determination that the Capitol extension should compare favorably with the great buildings of Europe. The previous administration had been more economy minded, intending the interior finishes to match the old building's whitewashed walls and stone floors. But with Meigs in charge—encouraged and backed by Davis—the interiors of the new wings were destined to showcase the finest materials worked by the best artists and craftsmen to the everlasting credit of the nation and the administration of Franklin Pierce. Walter, too, was pleased at the notion of high style interiors, although he would later disagree with some of the methods used to achieve the effect.

The new plans and the new embellishments were accommodated within the exterior that Walter had already designed. Adjustments to the foundations were necessary, but the work was at a point where that could be done without much loss. The only exterior alteration that Meigs suggested was the addition of pediments to the east porticoes. Walter's original design did not call for pediments because he felt that the entrances to the wings should not overshadow the central entrance into the rotunda. But Meigs intended the entrances to the extension—both outside and inside—to be as grand as possible and ordered pediments placed

on the porticoes. American sculptors would be commissioned to fill them with beautiful specimens of their art, making up for the poverty of design that Meigs found in Persico's three figures standing in the central pediment. For the doorways sheltered by the porticoes, as well as the entrances into the connecting corridors inside, monumental bronze doors would be commissioned to greet legislators and the public with artistic grandeur rivaling Ghiberti's baptistery doors in Florence.

On May 19, 1853, Meigs submitted the revised plan of the south wing for the president's consideration, intending to present a similar plan for the north wing if the first one was approved. Before a decision was made, the engineer was off to Philadelphia, New York, and Boston inspecting auditoriums to help evaluate the probable success of the chambers as rooms for speaking and hearing. Meigs left Washington on June 8 in the company of Joseph Henry, the secretary of the Smithsonian Institution, and Alexander D. Bache of the Coast Survey. In Philadelphia, the trio visited Girard College, the Music Fund Hall, Eastern Penitentiary, and Robert Mills' circular Sansom Street Baptist Church.[8] They then traveled to New York to inspect hotels, churches, and lecture halls. In Boston they visited the new music hall, the Massachusetts Statehouse, Faneuil Hall, and the vaults under the Beacon Hill reservoir. Upon returning home Bache and Henry recommended to the president that Meigs' revised plans be adopted pending further study.[9] Their recommendation was made on June 24, 1853, and the president approved the revised plan for the south wing three days later. The revised plan for the north wing was finished on July 5 and approved immediately.

Construction of the wings had been suspended while the president decided whether to adopt the new arrangement or continue with the old one. Walter regretted that the lull occurred during nice weather but kept busy finishing up the last details of the library reconstruction. In July he took his family to Cape May for a holiday, and upon returning he wrote a friend describing the perils of leaving town for a vacation:

> Here I am again in this center point of civilization, with as uncivil a set of fellows about me as you could well imagine—one would think that after being away some time they would have forgotten me and learned to go on their own hook, but no such good luck; almost every body I meet seems to have a string of questions as long as a fence rail, and my Capt. keeps after me with whips and spurs from morning to night—this going away to rusticate is not what it is cracked up to be; every thing gets behind hand. . . .[10]

While the architect was "rusticating" at the New Jersey seashore, granite from Richmond was being installed on the foundations. Above the granite, the lower courses of marble were being put on the outside walls. The marble was shipped by railroad from Lee, Massachusetts, to Bridgeport, Connecticut, where it was transferred to steamers for the Atlantic voyage to the Chesapeake Bay and up the Potomac River. Rice & Baird leased a wharf at the foot of New Jersey Avenue, on the banks of the Anacostia River, where cranes were used to unload the ships. As the stone came off, John C. Harkness, the government's "sworn measurer," made an account of each block, measured its size, determined its value, and rejected any that was unfit. Walter observed that Harkness had a large private business and "don't choose to give Uncle Sam more time than he finds convenient," but the architect also felt he was not paid nearly enough for the responsibilities of the job.[11] Keeping track of the inventory was "old grannie Bryant," the marble clerk who was slow, dishonest (in Walter's opinion), and was working only for his salary, "not for the love of being useful." The bills were made out by Zephaniah Denham and sent to Meigs for signature. If any question arose, Meigs sent the papers back for clarification or correction. It could take weeks or months for the contractors to be paid for their marble, and Walter occasionally tried to speed things along. In Meigs' judgment, the architect sometimes appeared too friendly with the marble contractors.

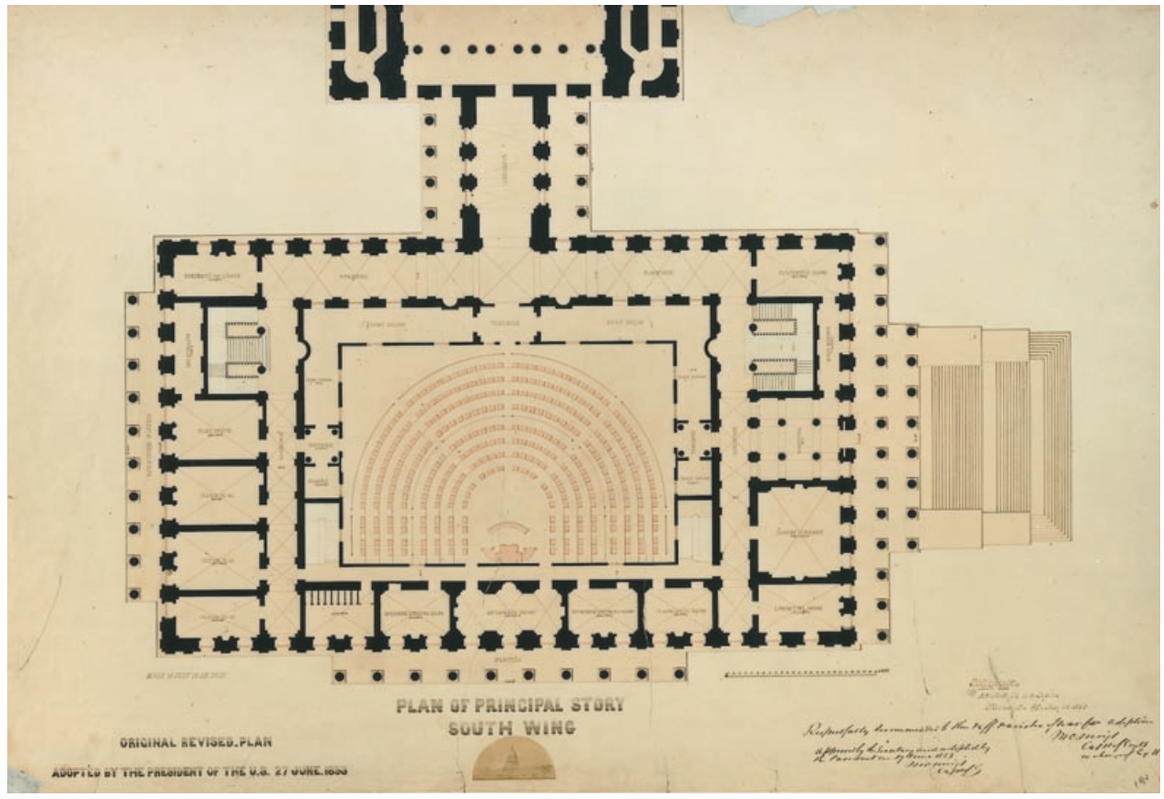
When Meigs first took charge, he discovered that the outside walls were at least one inch, and sometimes as much as four inches, too thick. The window sills on the east front were more than an inch higher than those on the western side. He vowed to keep a closer watch on the masonry department. In his private journal Meigs kept a careful account of the number of bricks laid each day, noting which masons laid the most bricks, how much bricklaying cost, and indeed every aspect of the Capitol's brick business. On August

Revised Plan of the South Wing, Principal Story

by Thomas U. Walter and Montgomery C. Meigs 1853.

Soon after Meigs took control, he and Walter revised the floor plans to bring the legislative chambers to the center of each wing. There, Meigs thought, the absence of windows would result in better rooms for speaking and hearing, and mechanical ventilation would be more dependable than nature's own breezes. Multiple sets of doors on all sides of the chambers also improved circulation.

President Franklin Pierce and Secretary of War Jefferson Davis approved the revised plan for the south wing on June 27, 1853.

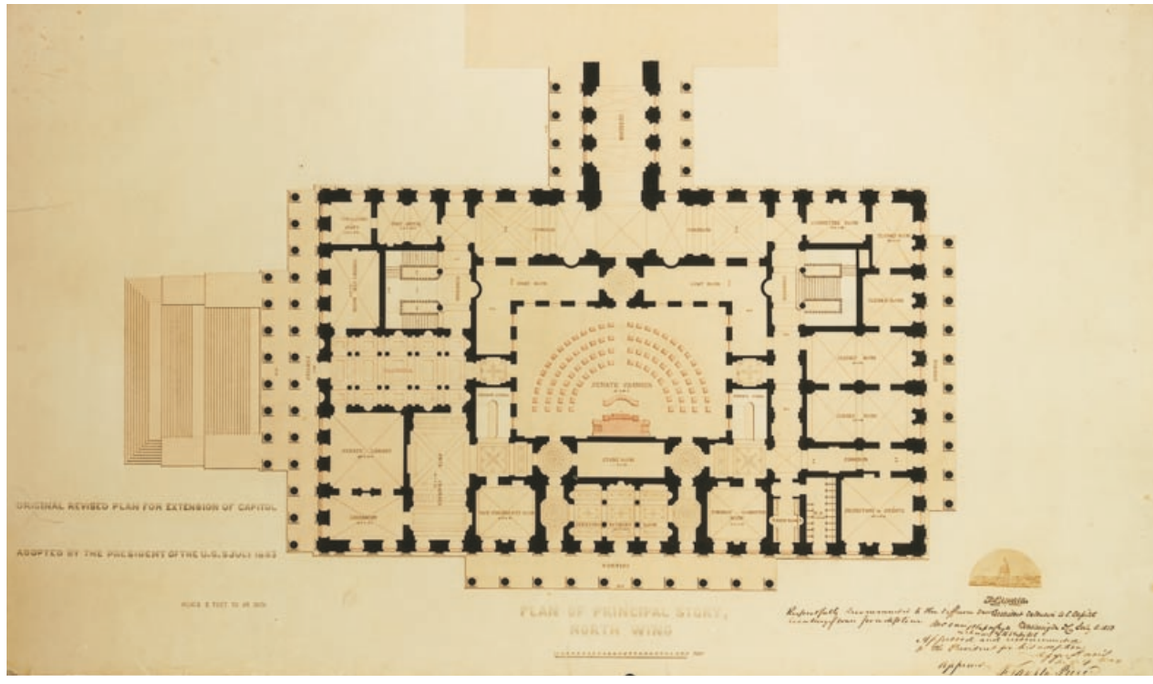


Revised Plan of the North Wing, Principal Story

by Thomas U. Walter and Montgomery C. Meigs 1853

Principal features of the revised plans included two sets of monumental stairs for the public to use when coming to see Congress in session and two sets of private stairs exclusively for legislators.

President Franklin Pierce and Secretary of War Jefferson Davis approved the revised plan of the north wing on July 5, 1853.



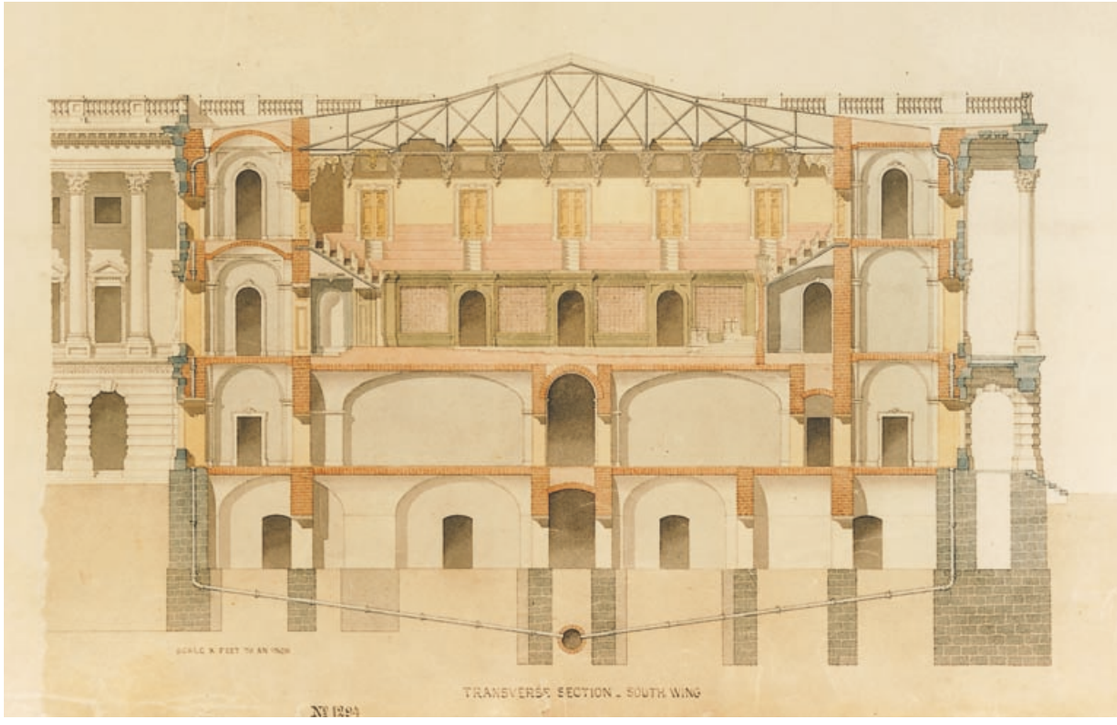
3, 1853, for instance, he noted that he had fifty bricklayers on the job but hoped to hire twenty more. The following week he had sixty men, who laid a total of 43,000 bricks a day using ninety-one barrels of cement. Three weeks later the number of bricks laid climbed to 53,000 a day. At that rate Meigs calculated that it cost exactly $4.07 to lay 1,000 bricks.

Brick was bought from six suppliers, whose daily deliveries barely kept up with demand. In September Meigs went on a brick-finding expedition; while away he wrote Walter with the suggestion to use what was called "clouded marble" for caryatids intended for the lower vestibules. The pronounced blue veining of some of the Lee marble made it unsuitable for the exterior walls, but for interiors it might prove useful as well as beautiful. Walter's reply illustrates the cordial nature of their early collaboration and provides insights into the workings of an architect's mind:

> I like your suggestion as to Heebner's clouded marble for the interior of the Basement; I think it would be very beautiful and appropriate. —the colonnade running through the south wing would look well of the lighter shades of blue and white, as the light at both ends will be bright—by the way I hope we shall yet get the ceiling and all the pilasters of this corridor in marble, or whatever we adopt for the columns; I think this ought be the grand feature of the basement—The eastern vestibule will be dark, and as it is entered directly from the deep double arcade, and has no other light, I think it should have a crypt-like appearance, and I have even questioned whether it would not look better to repeat the outside rustic piers, but of smaller proportions, and polish them. Your idea of Caryatids is a very beautiful one, but don't you think they would do better in the principal story where they would be in a good light?[12]

As in Latrobe's experience almost forty years earlier, caryatids were not to materialize inside the Capitol, but a considerable quantity of "clouded marble" would be used.

These sculptural musings did not distract Meigs from his immediate quest to find a reliable supply of brick. The need was urgent because of Cornelius Wendell's failure to make good on a contract for ten million bricks. Meigs visited brickyards in Baltimore, Philadelphia, and New York, striking deals to buy all the bricks he could. He was afraid the lack of brick would delay construction and make it possible for Congress to order a



***Transverse Section, South Wing,* Looking East**
by Thomas U. Walter
1857

Although the chambers were relocated in 1853, their general size and architectural treatment remained essentially as Walter had designed them in 1851. The rectangular House chamber remained two stories high, surrounded by a gallery, and covered by a flat iron and glass ceiling carried from iron trusses in the attic space.

restoration of the floor plans back to Walter's originals. Any claim he might have as an architectural collaborator would then be dashed, and history would remember that he merely built someone else's design. And that was not enough credit for Meigs, who was particularly sensitive to his legacy and to his place in history. He drove the works relentlessly to the point of no return.

DISTANT THUNDER

Considering past experiences, Walter dreaded the opening of Congress. He did not know what would upset members this year, but he knew that something would become the center of controversy before long. He faced the gathering storm with a sense of helplessness.[13] Although the bitter battle over the Kansas-Nebraska Act would soon drive factions in Congress farther apart over the slavery issue, the session started quietly. Visits to the new iron library were a favorite diversion and brought its architect well-deserved and almost unanimous praise. An unflattering comment, however, was made by Henry A. Wise, a former member of the House from Virginia, who dismissed the room as "all gammon, frippery, [and] tinsel." The remark was overheard by Librarian of Congress John Meehan, who was happy to hear someone complain because if everybody liked it, something was surely wrong.[14] In a contemporary account of the room written for *The Crayon,* a New York art journal edited by John Durand, another critic thought the new room was more forbidding than the old one:

> I should have liked an opinion of the new, and fire-proof library—all iron, save the floor, of stone. Despite its delicate tint of 'Portland Stone,' its heavy iron cornices, massive brackets, cast into every vegetable beauty of *cornu-copiae,* its liberal sprinkling with two thousand dollars worth of California gold, its straightest of all strait lines, so sharp, so many, that I never dared to lean anywhere—despite all these improvements and expenses, the old library, simple and unostentatious, its arched recesses affording something like retirement, (each one containing a chair and a writing table) the sober hue of its mahogany woodwork, was far pleasanter to my unlearned eyes and imagination. Cases of medals hung around then, portraits of our elder Presidents, and some others, agreeable to all beholders. Such things are no longer permitted: they would interfere with the supremacy of the cast-iron ornaments.[15]

As the session dragged into summer, heat buildup in the attic made the library's reading room uncomfortable. To exhaust hot air from the space between the iron ceiling and the roof, Walter asked Pringle Slight to replace a solid door with a louvered one. "Please attend to it as soon as possible," Walter wrote, "as Mr. Meehan is being roasted alive."[16] The underside of the glass skylights on the roof was painted to block direct rays of the sun to help cool the library. Following the architect's suggestion, white paint was tinted with sky-blue to promote an atmospheric effect.[17]

While Walter tried to control the temperature in the iron library, his friend and congressional champion Richard Stanton was steaming for purely political reasons. At the start of the session he was deposed as chairman of the Committee on Public Buildings, and he intended to stir up trouble to show his unhappiness.[18] He planned to introduce a resolution inquiring into the cost of changing the plans of the extension, plans about which he had had a good deal of say in 1851. The resolution also inquired into the circumstances surrounding "military rule" at the Capitol and other civilian projects. Walter tried to dissuade the congressman from making these inquiries because he was satisfied with things as they were and wished to avoid squabbles. Battles like the one he now foresaw produced only "calumny, slander, lies, and every demon that envy and malice can conjure up from all of which I say *'Good Lord deliver us.'*" But Stanton pressed his inquiry, and Walter's prayers for peace went unanswered.

On January 23, 1854, the Senate took up consideration of an army appropriation bill containing $325,000 for the Capitol extension. Robert W. Johnson, who had taken Borland's seat in the Senate, addressed his colleagues with concerns about a civil project being undertaken by the military:

> This Capitol is not a fort. It is not an arsenal. It is not a barracks for troops. It has no connection to military affairs. I would gladly vote to keep the Army disconnected from this portion of the public buildings. The appropriation does not rightly belong to this bill. To retain it here is against all precedent. There is no sympathy,

> no connection between the object of the appropriation and its position in this bill.[19]

Johnson admitted that he understood the president assigned the extension project to the secretary of war because of Davis' "capacity, taste, and judgment." The assignment had, however, nothing to do with the military affairs of the country. He wondered who would replace Davis if he left the cabinet. Would the works go to the postmaster general next?

Lewis Cass of Michigan voiced concerns about the new plan for the Senate chamber. He had studied the new scheme in Meigs' office and thought that too much emphasis was given to appearances and not enough to utility. "Architects," Cass concluded gravely, "sacrifice everything to beauty." But the lack of windows in the chamber was what worried Cass the most:

> Mr. President, it has seemed to me that the air and light of heaven were good enough; but the new room designed for the Senate Chamber, in the Capitol extension, I understand is not exposed to the atmosphere on any side. It is absolutely in a state of isolation. There are passages between the walls of the new Senate Chamber and the extension wall of the building, preventing the air of heaven from coming in. The air is to be pumped up, or pumped down, by some kind of machine, nobody knows what. I think, however, it is too late now to make any changes in it. I must leave to my successors to ascertain whether the building will suit them or not.[20]

Senators then bantered back and forth about the merits of the plan until Senator Johnson demanded to know where the steam-powered fans would be located. "I should be glad to know," he said, "because I have heard of explosions of steam engines."[21] This statement drew gales of laughter, which encouraged Johnson to elaborate on the thought and pose a second question: he wanted to know what horsepower the steam engines were to be. In any event, the concept reminded him of Guy Fawkes and the pile of combustibles once placed under the Parliament building in London.

Amid nervous chuckles, Johnson's question was referred to the architect. The image of the Senate being blown sky-high seemed to deflate any seriousness left in the day's business. The last word came from George E. Badger of North Carolina, whose common sense challenged the modern manner of mechanically heating and ventilating the new chamber:

> I would go back to the old-fashioned notions of our forefathers. When we want cool air in a room, I would open a window and let it come in itself. It needs no forcing. It comes with readiness if you give it a fair opportunity. Then with regard to the heated air, which, by a provision of nature, I am told, for I do not understand these things philosophically, will gradually get higher and higher as it gets warmer and warmer, you have nothing to do but to have a comfortable little ventilator at the top, and you will soon get rid of it. But this, sir, is the age of improvement; this is the age of progress; and I fear that my friend from Michigan [Lewis Cass] and myself will, in consequence of the remarks we have made today, be stamped 'old fogies' forever.[22]

Shortly after Badger took his seat, the Senate adjourned without voting on the appropriation to continue the Capitol extension. But it had been a jolly, good-natured afternoon.

During this period Meigs studied Rice & Baird's contract and hoped to amend it so that the outside walls could be faced with thicker blocks of marble than originally specified. He also wanted most, if not all, of the 100 exterior column shafts to be wrought from a single stone. As it stood, the contract allowed shafts to be made of drums four or more feet long. Like Joseph Elgar during the Bulfinch era, Meigs felt that monolithic shafts would contribute to the building's grandeur and stability. Shafts wrought from a single stone would cost $1,400 apiece, which was $300 more than a shaft composed of two or more stones. Congress agreed to Meigs' recommendations without debate, and on March 1, 1854, he was granted the authority to enter into a supplemental contract for these items.

Meanwhile, on February 13, 1854, the House had appointed Richard Stanton chairman of a select committee to investigate military superintendence at the Capitol, armories, and custom houses. Stanton's committee was strikingly similar to Houston's Senate committee, which had hounded Walter a year earlier. There was considerable sympathy with Stanton's position among those who saw "military rule" (as it was invariably called) as expensive and arbitrary. Walter dreaded Stanton's work and hoped it would not alter the administrative arrangement that he

liked so well. He recounted his admiration for Meigs to his father-in-law just as Stanton began his trouble making:

> The Capt. is as noble a man as the country can produce, and he is better fitted for his post than any one they could find whether *soldier* or *civilian,* and I most sincerely desire that he may not be removed; such a thing would be a disaster for the country in general and me in particular—you have no idea what a luxury it has been to me during the past year to be able to devote myself to the legitimate professional duties, and be freed from the annoyances of contractors, appointments, disbursements, and the like, all of which take time, unhinge the mind, and create an army of enemies.[23]

Walter's position was growing awkward. Despite his admiration for Meigs, friends such as Stanton attacked military rule as, among other things, contrary to law. When the responsibility for disbursements was taken from the architect, Stanton claimed, Congress had intended to place it in the hands of a minor official who would simply look after accounts. Instead of assigning a clerk to write checks, however, President Pierce placed the works in the hands of a dynamic engineer who made changes to the approved plans, fiddled with architectural details, and commissioned expensive works of art. That was certainly more than Congress had bargained for. Defending the status quo were some of Walter's other friends; Congressman Chandler, for example, was among those who spoke in favor of Meigs and the Army Corps of Engineers. Meanwhile, Davis grew to distrust Walter, viewing him with suspicion and thinking he might be behind the efforts to wrest the Capitol extension from the War Department. Meigs did not share the secretary's suspicions and defended Walter. For his part, Walter thought his best stance among the competing interests was to keep a low profile and stay quiet for the time being. When summoned before Stanton's committee, Walter expected its members wanted him to speak out against the War Department, but he was ready: "I have been too long under the harrow," he said, "not to know how to dodge the prongs."[24]

After completing his investigation, Stanton gave a long address in the House on the subject of military rule at the Capitol. He began by questioning the fact that Meigs was permitted to draw money from the treasury without posting a bond or giving security as civil agents were required to do. "Are Army officers a better order of men? Have they more integrity than other men?" Stanton asked sarcastically. The intent of the law separating the architect from disbursements had been that monies should be handled by a civilian, Stanton claimed, but its effect had been that an army officer now acted as the disbursing agent, architect, and superintendent. Meigs had

> complete control over every other officer, and every part of the works. He makes contracts with whom he pleases; he purchases materials when and where he chooses; he employs mechanics and laborers, and pays for all of them by his own check or order . . . . Captain Meigs may be accomplished in his profession; he may know how to lay out the grounds for encampments and fortifications, to construct fortifications and military roads. These are the duties in which he has had experience, and for which the Government educated him. I will not deny him the merit of being a proficient in these duties; but that he was qualified for the intricate and elaborate architectural details of such a work as the Capitol is beyond all reason.[25]

Meigs' handling of the brick buying business was also questioned. According to Stanton's version of the story, Meigs rejected offers from local brick makers and went off to Philadelphia and New York, where he struck deals that resulted in brick costing almost eleven dollars per thousand—local bricks, "of infinitely better quality," would have cost just seven or eight dollars. Aggravating this outrageous business was the fact that brick from other cities was about 30 percent smaller than Washington brick.

Stanton went on to denounce the changes that Meigs made to Walter's original design. The architect was a civilian with an appreciation for what things cost, as well as how things looked. He was a man of refined taste, a man of great skill and experience. The design for the Capitol extension, "in all its beautiful proportions and elaborate details," was his creation. Being a military man, Stanton claimed, Meigs liked neither Walter's plans nor Walter's economy. The increased thickness that he had ordered in the marble facing would entail a needless additional expenditure. His desire to use monolithic shafts would increase the price of these parts of the columns from $680 to $1,400. "Here, then, is an additional expenditure of over $700 on each of a

hundred columns" Stanton said, "made necessary by the magnificent ideas of the engineer."

Stanton next condemned on principle the notion of military officers overseeing civilian projects. Before concluding with a call for change, he denounced the revised design for the House and Senate chambers. Particularly bothersome was the proposed method of ventilating the windowless rooms by forcing air down through holes in the ceilings and out through openings in the carpets. A similar plan, he asserted, had been adopted for the House of Commons in London and found to be "a noxious folly." Stanton quoted an English source saying that members of the House of Commons sat in their hall with their feet at sixty-eight degrees, their middles at seventy-one degrees, and their heads at seventy-three degrees. "Thus their feet would be freezing," Stanton concluded, "while their heads were scorching." Now Americans were about to repeat Britain's mistakes, thanks to this "specimen of military engineering." Until he lost his seat in 1855, Stanton kept up his attacks on Meigs and rarely lost an opportunity to praise Walter, which unintentionally caused a strain in the Capitol extension office.

Meigs took scant notice of Stanton's speech. During the height of the 1854 building season the engineer kept up his breakneck pace and pushed the works with all his might. Most members of Congress did not share Stanton's view, and when it came time to vote an appropriation no one spoke against it. On July 7, 1854, an additional $750,000 was appropriated by the House to continue the extension: it was approved by the Senate and signed into law on August 4. With about $450,000 unexpended from the previous appropriation, Meigs had a princely sum—about $1.2 million—on hand for the Capitol.

A FIREPROOF DOME

The same day that Stanton attacked Meigs in the House, Representative Joseph Chandler spoke strongly in favor of the Washington Aqueduct. A modern municipal water system was necessary for many reasons, but Chandler thought fire protection was the most vital. He was quite concerned about the Capitol in general and its wooden dome in particular:

> I hope, sir, this Capitol is not destined to burn again. I hope not; but I say to you, there is not a shanty within a hundred miles of this city which is such a complete tinder-box as is this Capitol. You may look around and see these marble cornices; and you may look on the floor and see it laid in brick and mortar, and say that fire cannot reach them.
>
> But, sir, there is a dome over the center building of this Capitol which invites fire. There is a nest of dry materials there, covered over with tarred paper, that seems almost to threaten conflagration without the use of the torch—a spontaneous combustion. When, two years since, the library of this House was destroyed for want of a little water—when $200,000 were lost there for want of a little water—then, sir, it was nothing but the accidental placing of a military force upon the spiral stairs of the House that kept the fire from reaching that dome.[26]

When Chandler addressed the House, on June 14, 1854, Walter was already in the throes of designing a new cast-iron dome for the Capitol. Considering their long friendship, the congressman doubtless had seen drawings in Walter's office and was laying the groundwork for its authorization. Exactly who originated the latest idea for a new dome is unclear, but talk of one had been around for years. A new fireproof roof over the rotunda, in the form of a noble dome, would be an improvement appreciated by almost everyone. Not only would it be safe from fire, but it would also rid the Capitol of the wooden dome that had been the source of national embarrassment since the Monroe administration. Replacing it would be a fitting conclusion to the architectural improvements then under way.

Walter recorded working on a dome design for the first time in his diary on May 31, 1854. His second reference was contained in a letter written on July 20, 1854, to Charles Fowler, whose iron business was lagging during a depression in the construction industry. To cheer him up, Walter (who referred to himself as "Mr. Fogey," a playful version of "old fogey") wrote about the prospects of large orders for iron coming from his office:

> Mr. Fogey has also completed a magnificent dome for the Capitol all to be of cast iron.—it is 264 feet high, of such proportions as throw all other domes in the shade—every member

> of Congress who has seen it is enthusiastically in its favor, and is ready to vote the supplies whenever asked—will cost half a million at least—such a design was never made by your friend—the drawing is 7 feet long—I wish you could see it—now the Capt. agrees with me that nobody but you can do it—and my opinion is that you will do it; but like everything else at Washington, it will be a long time before we get at it—I think we shall have an appropriation next winter.[27]

While designing this new dome, Walter studied prints of the great domes of Europe, scrutinizing Renaissance, baroque, and neoclassical designs for ideas. He had firsthand knowledge of some of these domes, having been sent to Europe in 1838 by the building committee of Girard College. While in London, Paris, and Rome, he encountered many domed buildings and examined the best and most famous of them, and he set forth his observations on the public buildings of Europe in a 180-page report.[28] This fascinating document contains information about new building technologies, the performance and longevity of materials, and mechanical and sanitary improvements, all of which were deemed useful in planning the college. Walter paid close attention to St. Paul's in London, St. Peter's in Rome, and the Panthéon in Paris.

Although at the time too steeped in the aesthetics of Grecian architecture to admire the bravado of Wren's baroque masterpiece, Walter had kind words to say about its dome and particularly admired the sweep of the unbroken entablature above the colonnade. To his eye it provided a welcome sense of unity:

St. Paul's

> As respects the Architectural taste of St. Paul's, I can say little in its favor . . . the multiplicity of breaks and incongruous forms which the whole composition abounds (excepting only the Dome) is found to destroy all repose and harmony; and to produce a confused effect that interferes with every idea of beauty.
>
> In the design of the Dome, and the peristyle from which it rises, an opposite practice has been pursued, and a most agreeable effect is the result. Here we have breath of parts in the Dome that affords repose to the eye, while the continuous entablature of the Peristyle forms a beautiful girdle around its base: but all below this point fails to produce a single agreeable sensation.

Moving to another great domed building, Walter's thoughts on the papal seat in Rome were probably colored by his strong Protestant upbringing:

St. Peter's Church

> Notwithstanding the magnitude and costliness of St. Peter's, it possesses very little architectural merit . . . the immense dome the outside diameter of which is 160 feet 'swells vast to heaven' with a majesty and grandeur that atones for the many faults in the minutia of its design.

His favorite dome in all of Europe was the one in Paris crowning Jacques-Germain Soufflot's great neoclassical church, which was originally built to honor St. Genevieve but later dedicated to French national heroes. He was particularly struck by the manner in which the interior was formed, with a monumental painting viewed through the wide oculus of an inner dome:

The Panthéon or Church of St. Genevieve

> This is undoubtedly the most beautiful specimen of Architecture in Paris. . . . The cupola is 66 feet in diameter in the clear and consists of three separate arches. . . . The inner or lower arch is pierced with a large opening, through which is seen the ceiling formed by the second arch, which is ornamented with a painting representing an apotheosis of St. Genevieve. . . . The exterior dome is made with the single object of producing a graceful contour to the composition.

To refresh his memory, Walter referred to prints of the domes cited in his report, as well as a few others. According to draftsman August Schoenborn, Walter also had views of the domes over Les Invalides in Paris and St. Isaac's Cathedral in St. Petersburg, Russia. All influenced the initial design for the Capitol's new dome: all were classical; all were set upon high, multistoried drums; and all were topped by distinctive towers or lanterns.

Walter's first scheme, illustrated in his seven-foot-long drawing, showed a tall, ellipsoidal dome standing on a two-story drum with a ring of forty columns forming a peristyle surrounding the lower half of the drum. The upper part of the drum was enriched with decorated pilasters upholding a bracketed attic. Crowning the composition was a statue standing on a slender, columned tholus (the lantern under the statue). The opulent ornamentation was in keeping with the French-inspired rococo taste of the time, which had superseded

the notions of "chaste" simplicity expounded in the heyday of the Greek revival. Hand-in-hand with contemporary taste was the modern material selected for the dome—a material with great advantages over stone in terms of weight, expedition, and cost. Cast iron, cheaply and rapidly mass produced in a factory, would permit a dome to be built as big and as elaborate as one could wish. Structural and decorative components that would be expensive and time-consuming to carve in stone could be imitated in iron at a small fraction of the cost. Anyone doubting Walter's talent at designing ornamental ironwork needed only to visit the Library of Congress to see firsthand the dazzling effect of his skill.

The second session of the 33d Congress convened on December 4, 1854. When not in their chambers, representatives and senators were drawn in increasing numbers to the architect's office, where they could feast their eyes on Walter's drawing showing the enlarged Capitol crowned by a beautiful new dome. It would complete the Capitol's transformation from a somewhat awkward building into a magnificent triumph of classical grandeur. Although the drawing has been lost for years, it is known through a surviving photograph—a black and white image that surely conveys only a fraction of the picture's original visual impact. Judging from Walter's surviving presentation drawings, the large rendering must have been a breathtaking sight. Elegant carriages, prancing horses, and fashionably dressed gentlemen and ladies enhanced its artistic appeal. One of the factors behind Walter's success as an architect was the sense of prosperity and well-being he was able to convey in his exquisite drawings.

Visiting Walter's office was easier for legislators than in previous sessions. They no longer had to cross A Street north and climb the stairs to the rooms above Adams Express, for Meigs had outfitted three rooms in the new House wing for temporary offices. Walter himself felt the move was premature, and when he took up quarters there during the first week of September 1854 he was nearly swamped in dirt and wood shavings and upset by workmen finishing the room.[29] By the opening of Congress, however, everything was put into place and the office was ready to welcome the steady stream of visitors who came to inspect the works. Meigs escorted legislators around and carefully recorded any compliments they paid him. He showed them plans of the wings and pointed out the dome drawing hanging in Walter's neighboring office (modern day H–142). While looking over the

Original Design of New Dome on the U. S. Capitol

by Thomas U. Walter
1854

This period photograph of Walter's long-lost drawing shows the original design of the iron dome. The drawing was seven feet long and attracted considerable attention when it was hung in the architect's office. Just ten weeks after the drawing was finished, Congress authorized and funded work on the new dome.

drawing, Meigs was occasionally asked about the cost. Although an estimate had not been made, he thought $200,000 might be a fair guess and quickly added that he would be happy to build it. One enthusiastic member cried "Let's have it done!" Meigs, however, concluded that "this is a joke and probably will lead to nothing."[30]

With each congressional visit, momentum grew for building the new dome. Walter preferred putting off construction until his workload subsided, but Meigs could hardly wait to begin work. Dome fever ran so high that some members wanted the new dome to cover the whole Capitol.[31] Caleb Lyon of New York thought the new dome should be the biggest one in the world.[32] Meigs began sketching alternative designs for a dome, including one with flying buttresses for the sake of variety.[33] Whatever his sketches may have shown, he wanted the dome to be as good as he could make it:

> I wish to have something to do with this design myself. I can make a little greater height and more graceful outline and a very noble and beautiful interior arrangement. I have in Parallels Des Edifices most of the domes in the world of any celebrity, and I think mine is better than any one of them. I only wish I had it to begin from bottom. The famous Pantheon in Paris is only 60 or 70 span. . . . There are in this church and in many other domes great beauties of detail, and the inside effects are generally better than the outside ones, I think. With ours, I hope to have both good.[34]

Horatio Stone, the sculptor, stopped by Meigs' office (modern day H–144) on December 28, 1854, and introduced him to an Italian fresco artist named Constantino Brumidi, who would soon figure prominently into Meigs' art program at the Capitol. After arranging for the artist to provide a sample of his work, Meigs showed them Walter's dome drawing and a design that he had prepared. He claimed that Stone preferred his design because of its richness and grace.[35]

Writing in his journal the following evening, Meigs expended a considerable amount of ink ranting about Walter's dismissive and condescending attitude when shown a dome design drawn by the engineer. This was more than Meigs could bear. He was tired of the architect garnering all the credit for the architecture of the extension and new dome while he himself was in charge and was due more credit than was being given. He was tired of hearing Walter's dome drawing praised to high heaven while no one except Horatio Stone seemed to notice that his design was as good or better. He directed, he ordered, he controlled, he commanded—yet Walter got the credit. The suggestions he made to improve the appearance of Walter's dome design failed to receive the credit they deserved. Writing furiously in Pitman shorthand, Meigs complained:

> He [Walter] wished to have all the credit himself, and he will always claim all the credit of all the design of the Capitol, plans and all, I suppose, hereafter. The fact is that his designs for the interior are his but little more than they are August's [Schoenborn], for they have been made upon my directions. The arrangement of the rooms is mine. The form of the ceiling is mine. The style of decoration is that which I directed. And the mere details of leaves, etc. are worked up by him as they would have been by August or any other draftsman. . . . The flowers and leaves are his, but only adopted after having been subjected to my criticism and approval after alteration to make them suit my taste in almost every instance. So that, in fact, the design is quite as much, if not more, mine than his. As for the very dome which he will call his, it is very different that from what he first proposed. He altered and changed in consultation with me. . . . And for its construction he followed my hints. Yet he would never allow that I had the least claim of any merit in this design. I told him when it was finished that it was good, the best I had ever seen, but that it would require much more study and many changes before it would be in form to be built, and to this he agreed. Now I think that the design I have sketched out as a sketch is much better than the other. Whether it will work up as well, I can not tell till I try, and that I wish to do. If better, I shall try to have it built. Even if I am obliged to take my proper share of the credit of its design, he has assumed the whole merit till I am getting tired of it.[36]

In the privacy of his study, Meigs could rail about one of America's most distinguished architects without upsetting their working relationship at the office. Meigs' role in the design process was similar to that of an editor-in-chief at a newspaper, who consults with writers, approves certain things, and changes, or disapproves others. While the final product reflects his management and style, the byline still carries the author's name. Walter was the architect, and no matter how useful Meigs' suggestions or directions were he would not be

given the same credit as the architect. It was a dilemma that disturbed Meigs a great deal.

In casual conversations with the nation's legislators, Meigs recklessly promised that the new dome could be finished by the opening of the next Congress. To accomplish such an astonishing feat, he considered setting up a foundry on the Capitol grounds. That idea, however, was kept to himself as he lobbied for the dome. He used the depressed conditions in the iron industry as one reason to support the venture. The fabrication of pieces for such an enormous structure would revitalize foundries up and down the east coast, Meigs asserted, creating jobs and stimulating local economies. To Senator Pearce of Maryland, for instance, he wrote: "I think this season of universal depression in the iron trade a favorable one for this work. Prices will be lower than they were last year and the expenditures of money will be a most grateful relief to a large number of necessitous but worthy and industrious men."[37]

Meigs' idea of casting ironwork at the Capitol (which never materialized) would have done foundries in Baltimore, New York, or Providence little good. But swift completion of the dome would boost his reputation as a man capable of working wonders. On the last day of 1854, Meigs wrote in his journal: "This I would like to put up by such machinery and by such means as would make it seem like fairy work. No dome of the magnitude of this has ever been built on a great public building except by years of toil. This one being of iron, I could build with the money in a few short months."[38]

Early in January 1855, Meigs was taken aback to hear Congressman John Wiley Edmands of Massachusetts criticize Walter's dome design, not because Edmands' objections were unjust, but because Meigs was so accustomed to hearing the design praised so lavishly.[39] Yet criticisms of the dome or the architect were rare. Meigs was annoyed with newspaper editors praising it and giving Walter reason to boast.[40] The papers promised that Walter would likely join the ranks of Michelangelo in the world's pantheon of great dome designers. Feeling threatened and unappreciated, Meigs tried to come up with a design that would be preferred to Walter's.[41] Unfortunately, whatever dome studies he made have not survived.

On February 20, 1855, Meigs sent the House Committee on Public Buildings draft legislation to authorize construction of the iron dome. The chairman, however, did not think there was enough time before the close of the session for his committee to consider it. Two days later, while the House sat in Committee of the Whole, Richard Stanton offered his own amendment providing $100,000 for the dome. Stanton's legislation stated that the money would be expended under the direction of the architect, which would exclude Meigs and the War Department from the project. He wanted quick approval so the dome would be finished by the opening of the next Congress. His brief address included high praise for Walter and the architectural improvement promised by the new dome:

> The architect of the building has designed a dome, the plan of which I have seen, and which commends itself to my judgment; and which all who have seen it say is most beautiful and perfect. It is well known that the present dome is entirely too low to preserve the symmetry of the building when the extensions are completed. It will give it a squatty appearance, if I will be allowed the expression. Unless this is done the whole purpose of the extension, so far as its beauty of construction is concerned, will be defeated. Now, sir, I understand that the plan proposed by the architect is a proper one, and that it will not be attended with great cost. The dome has always been an eye-sore to architects and others who have taste in such matters; and it seems to me that now is the appropriate time to authorize the reconstruction of it. It can be, perhaps, completed before we get back here during the next fall.
>
> I am requested to say that it is designed to construct it of cast iron, and from the experience which the architect has had in these matters I have no doubt he will make it a very perfect thing. No man can look at the library, which is constructed entirely of cast iron, without being immediately convinced that such a structure can be erected as will be a credit to the architect and the country.[42]

While others would vote against the amendment, only August Sollers of Maryland and Alfred Greenwood of Arkansas spoke against the new dome as a needless expense. A friend of Captain Meigs, John Taylor of Ohio, thought the language of the legislation indicated a split between the architect and the engineer and asked why the current arrangement would not continue during

construction of the dome.[43] Stanton sensed that Meigs' friends would block authorization unless the engineer was brought into the project, and he therefore offered to strike the provision giving Walter control. Satisfied, Taylor withdrew his objections and the amendment was put to a vote. It passed after Harry Hibbard of New Hampshire, as chairman of the Committee of the Whole, cast an "aye" vote to break what had been a seventy-seventy tie.

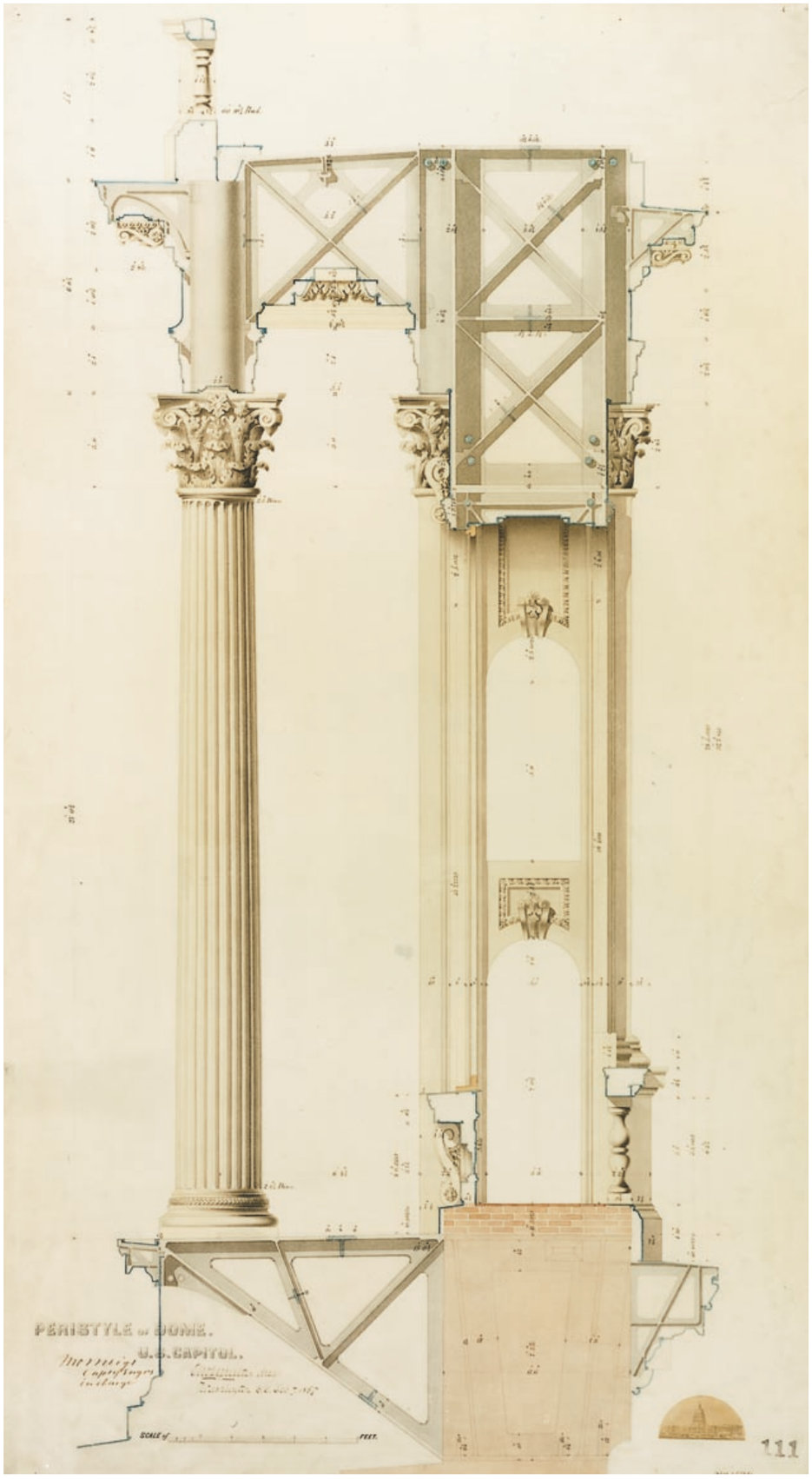
Two days after the amendment passed, it was accepted by a vote of the full House. The commissioner of public buildings, Benjamin B. French, stopped by Meigs' office and mentioned how pleased he was to be given the opportunity to build the new dome. As commissioner, he was responsible for the rotunda and old dome, and he viewed the new dome as he would any repair to that part of the Capitol. Although the bill made no mention of who would be in charge, Meigs cited the debates during which his name was put forth as the proper officer to construct the iron dome. Still, French persisted in the belief that he would be in charge. Meigs immediately wrote senators to ensure that the matter would be clarified when the legislation was sent for their consideration. He was horrified that the great new dome might be put into the hands of "Goths and Vandals."[44] To Senator Thomas J. Pratt of Maryland Meigs said that he would be mortified to be excluded from the work, which the House intended for him.[45] He told Senator William C. Dawson of Georgia that he considered the new dome a great engineering work and therefore hoped to build it to reflect credit upon the Army Corps of Engineers and West Point.[46] These efforts succeeded in placing construction of the dome under the president, who would assign the work to the War Department. With satisfaction, Meigs noted that the "proper correction" had been made in the Senate.[47] On March 3, 1855, the president approved the appropriation directing Meigs to build Walter's dome design.

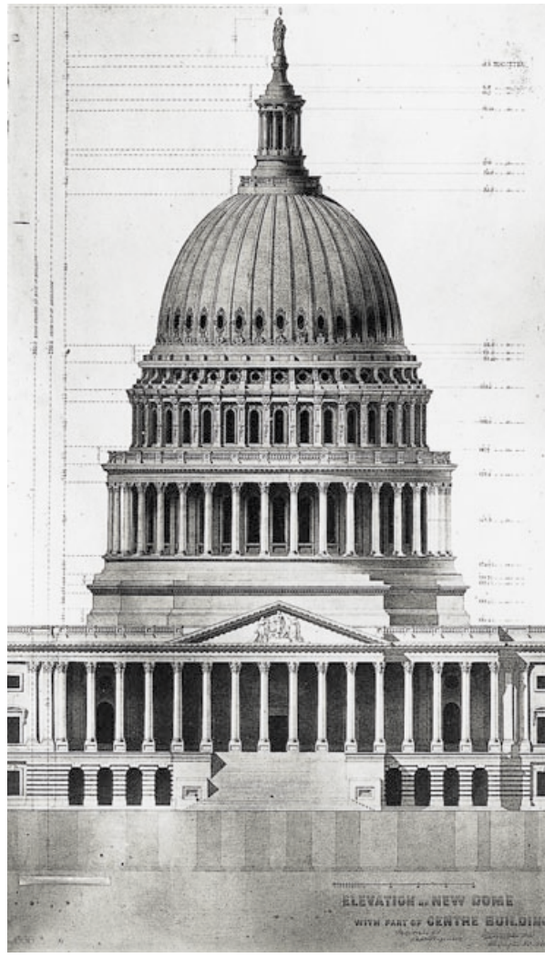
On the same day that Pierce approved the dome appropriation he also approved funds to enlarge the Post Office and the Treasury Department buildings. Secretary Davis placed Captain Alexander H. Bowman in charge of the treasury project and Meigs in charge of the Post Office. While both additions were designed by Walter, the buildings were more closely associated with the venerable Washington architect Robert Mills. Both were built by Mills in the 1830s, and Mills had been the architect of the Treasury Building. Although in his seventies, he wanted the appointment of supervising architect for either or both buildings, but he saw his hopes dashed when the works were put under the War Department. According to one account, his "disappointment was too much for him. He became deranged and died."[48]

PRACTICAL CONSIDERATIONS

Once legislation for the dome was signed into law, Meigs and Walter found themselves with $100,000 but without working plans or estimates of weight or cost. Except for Walter's handsome drawing, they had little to work from other than the confidence that such a dome could indeed be built on top of the nation's Capitol. There had been no studies, no blue-ribbon commissions, no outside experts to tell the architect or the engineer that their ideas were practical. With an undaunted confidence, however, and a belief that no problem was without a solution, the two men plunged into the gritty details to make the iron dome a reality.

The first problem to be addressed was how to support the columns of the lower peristyle. The large drawing hanging in Walter's office showed forty columns carried on a new attic story built on top on the center building. Part of the attic would be carried by the masonry walls and part by the columns of the east portico. After studying the problem of adding an attic, Meigs, or his assistant engineer Ottmar Sonnemann, devised a scheme that dispensed with the attic altogether.[49] Sturdy iron brackets would be embedded in new brickwork laid on top of the rotunda walls to extend the columns beyond the old structure. Thus the columns would be cantilevered and would require no support directly below: the expense of the attic was therefore avoided. An iron skirt would hang below the columns and give the peristyle the look of a solid base. The number of columns was reduced to thirty-six, a more convenient number considering their placement along the 360 degrees of a circle.





Elevation of New Dome
by Thomas U. Walter, 1855

Soon after Congress appropriated funds to build the new dome, Walter and Meigs worked out a practical design based on realistic construction considerations. The results differed somewhat from the first design. The number of columns in the lower colonnade, for instance, was reduced from forty to thirty-six to simplify their placement along the 360 degrees of a circle.

Peristyle of Dome
by Thomas U. Walter, 1857

Cantilevering the columns of the peristyle on brackets allowed the diameter of the dome to exceed the diameter of the rotunda, thus allowing the new dome to be as large as possible.

View of the Capitol with the New Dome
by Thomas U. Walter, ca. 1855
The Athenaeum of Philadelphia

This beautiful perspective shows the extension completed and the center crowned by a new dome. Characteristically, Walter drew a spirited scene of carriages, horses, and crowds of people in the foreground.

Section through the New Dome and Rotunda
by Thomas U. Walter
ca. 1855

This early design sought to make the rotunda as high as possible.

Other refinements to the design that followed the dome's authorization included the addition of windows to the cupola, the simplification of the ribs, and the introduction of a band of anthemion (or Grecian honeysuckle) to the base of the cupola. The composition was still capped by a statue standing on a tall tholus. Who or what the statue portrayed would be decided later. The interior form and decoration were also studied. After the brick, wood, and plaster inner dome was removed, the lower forty-eight feet of the old rotunda walls would remain in place and act as a foundation for the new ironwork. Above Bulfinch's sandstone walls would be a row of iron panels and

a decorative frieze 300 feet long. Corinthian pilasters set between arched windows would support an inner dome that would rise to a wide opening through which a second inner dome with another set of windows and pilasters would be seen. The whole interior composition was a somewhat undisciplined piling of classical ornament and domical forms—literally creating a rotunda above a rotunda. While not well proportioned, it would have been very tall and very large, and, therefore, very acceptable to American taste.

Removing Bulfinch's dome was the first step taken towards building the new one. By mid-September 1855, a scaffold had been built around the outside dome to peel the copper covering off; a second scaffold inside facilitated removal of the inner dome. Meigs dispatched assistant engineer Sonnemann to the Patent Office to study a model of the scaffold used to erect Nelson's Column in London, hoping it would be useful in designing the interior scaffold for the rotunda.[50] Pringle Slight warned Captain Meigs about the weak spot in the center of the rotunda floor, where the circular opening had been until it was closed at John Trumbull's behest in 1828. Since Slight had helped to plug the opening, he knew the floor conditions well. Meigs designed the scaffold's base with a triangular footprint to stand clear of the floor's vulnerable center. Later, two "sticks" eighty feet long were hoisted to the top of the scaffold to function as a mast and boom to lift the ironwork into place. A steam engine housed in a shack on the roof provided the power for hoisting the iron. With characteristic efficiency, Meigs fueled the engine with wood salvaged from the old dome.

Before the inner and outer domes were demolished a temporary roof was placed over the rotunda to protect it from the weather and from plummeting tools, materials, or unlucky workmen. Meigs devised an ingenious conical roof resting on the upper cornice of the rotunda, with a center opening through which the scaffold would pass. Wooden rafters were covered with boards, which were then covered with painted canvas. Cotton canvas was also ordered to cover the rotunda's paintings. Twelve skylights were provided to light the rotunda during construction. By the end of November most of the demolition had been completed. Meigs was grateful when workmen finished removing the plaster from the inner dome because it was such a dusty job. He also noticed that some men crept around the dome while others were unable to stand upright.[51] More than a few otherwise sturdy workmen were seized with acrophobia, a problem that perpetually plagued construction.

In August 1855, the editor of *The Crayon* told its readers that a new dome was about to be placed on the nation's Capitol: "The whole work is to be of iron, from bottom to top, inside and outside. It will be the first structure of its kind ever built of this material." Editorially *The Crayon* saw nothing wrong with the notion of an iron dome, but at least one reader took exception. Writing anonymously, the critic observed:

> The construction of the new dome is a violation of the true principles of design. Iron is to be used in precisely the same form as if it were stone; of course, the pillars will be cast hollow, and they will be painted to imitate the marble. The extreme height of the dome, as it is to be, for it is piled up with range of pillars above range, and elevated as much as possible, will make violence in the general outline of the mass. . . .
>
> No! Mr. Thomas U. Walter will make a great mistake, if he attempts to rear upon this long line of building a dome of the greatest possible height in order to gratify individual caprice or personal ambition.[52]

As the writer made clear, not all Americans were enamored with the idea of iron imitating stone. However, although the importance of "honest" buildings and "truthful" materials was becoming a pesky issue within architectural circles, this philosophical matter did not bother Walter, Meigs, or the politicians in the least.

As members gathered for the opening of the first session of the 34th Congress on December 3, 1855, they were greeted by the sight of the Capitol without its old wooden dome or its new iron dome. About 60 percent of the members of the House of Representatives had served in the previous Congress, and a great many expected to see the new dome finished as promised. Not only was the new dome not finished, it had not been begun. Yet they were soon greeted by Meigs' request for another $100,000 to continue work. There would be plenty of questions to answer before any more money was granted.

View of the Capitol After Removal of the Old Dome

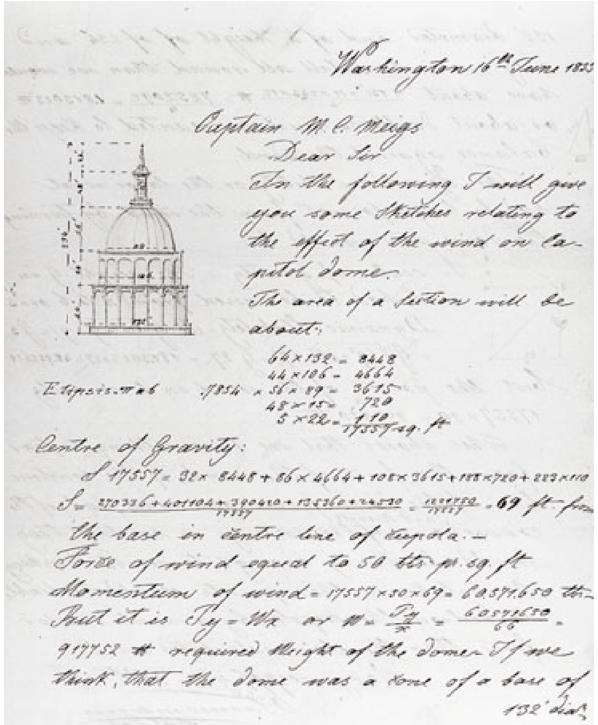
January 1856

Soon after the dome was removed, Walter had one of the new iron columns (marked "A") hoisted in the air to judge the sculptural effect of the Corinthian capital as seen against the sky. Nearby was the rooftop shack housing the steam engine that powered the hoisting apparatus.

View of the Capitol, Looking Southeast

1856

When Congress turned its attention to funding the dome, inquiries were made that should have come long before the original appropriation passed. These practical questions were about the feasibility of re-doming the Capitol, the strength of the foundations, and the probable cost of the project. Members could see that the dome was not finished, and they were not ready to believe any more



Washington 16th June 1855

Captain M. C. Meigs
Dear Sir
In the following I will give you some sketches relating to the effect of the wind on capitol dome.
The area of a section will be about:

64 × 132 = 8448
44 × 106 = 4664
Ellipsis π a b .7854 × 56 × 89 = 3615
48 × 15 = 720
5 × 22 = 110
17557 sq. ft

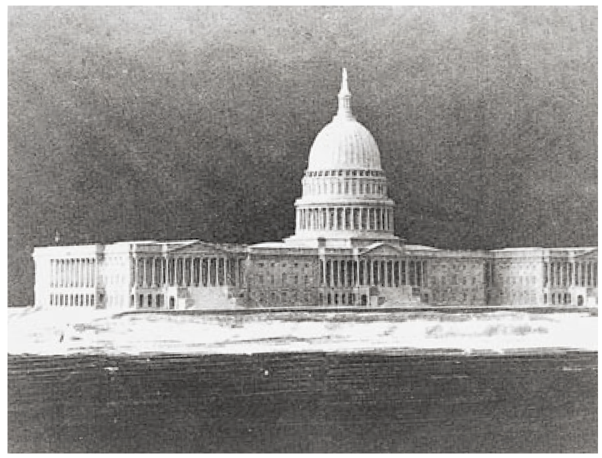
Centre of Gravity:
S 17557 = 32 × 8448 + 86 × 4664 + 108 × 3615 + 188 × 720 + 223 × 110
S = (270336 + 401104 + 390420 + 135360 + 24530) / 17557 = 1221750 / 17557 = 69 ft from the base in centre line of cupola. —
Force of wind equal to 50 lbs pr. sq. ft
Momentum of wind = 17557 × 50 × 69 = 60571650 lbs.
But it is Py = Wx or W = Py/x = 60571650/66 = 917752 # required weight of the dome. If we think, that the dome was a cone of a base of 132' dia.

A Dome Report

1855

One of Meigs' assistant engineers, Ottmar Sonnemann, calculated the probable effects of wind on the new dome and reported his findings in the letter shown here. Like other such studies, this one came after the dome was authorized and funded.

Sonnemann came to the Capitol after an earlier career as a railroad engineer. While employed by the Baltimore & Ohio Railroad, he worked under the company's chief engineer, Benjamin Henry Latrobe, Jr.



Model of the Capitol with the New Dome

ca. 1855

Meigs had this model made to give an idea of the finished appearance of the Capitol with the extension and new dome. An engraving of this photograph gave many Americans their first glimpse at the design of the new iron dome.

promises without substantial backup. On March 6, 1856, the chairman of the House Ways and Means Committee, Lewis D. Campbell of Ohio, wrote Jefferson Davis asking if an examination of the rotunda walls had been made to determine if they were strong enough to bear the weight of the proposed dome. He also wanted to know what the dome would weigh. Davis forwarded the letter to Meigs, who confessed that he could not estimate the weight of the dome because he did not know the weight of each casting needed to build it. He would not risk making a mistake on such an important question. Walter, on the other hand, was willing to make an educated guess. He assumed the ironwork would average six inches in thickness and estimated the dome would weigh fifteen million pounds. Meigs used the figure to estimate that the new dome would load ten thousand pounds per square foot on the old walls.

When the dome was completed nine years later, it was found that 8,909,200 pounds of iron had been used in its construction. An additional 5,214,000 pounds of brickwork had been used to knit the new iron to the old masonry. As it was dismantled, Bulfinch's outer dome and inner dome were found to weigh 11,853,584 pounds.[53] Remarkably, the great iron dome was only 20 percent heavier than its significantly smaller predecessor.

On April 10, 1856, the House of Representatives took up an appropriation to continue work on the Washington Aqueduct. Russell Sage, a member from New York, expressed doubts about the funds Meigs requested because he did not trust the engineer's forthrightness in working up cost estimates. He noted that the dome would cost more than $100,000 and said that two-thirds of those who voted for it thought only one appropriation would

be needed to build it. Sage implied that Meigs purposely misled Congress with his estimates.

Meigs wrote congressmen and senators with his version of the case. To Senator Albert G. Brown of Mississippi, for instance, he declared:

> The fact is, that though repeatedly asked by members who saw the drawing to say about what it would cost, I always declined expressing any opinion, saying the mere elevation was not enough to make an estimate upon, and that I had too much regard for my own reputation to venture a guess upon so important a matter.[54]

Meigs also wrote a member of the Ways and Means Committee stating that he was not responsible for the estimates for the dome. "No man could have been more careful to avoid giving an estimate on insufficient data," he declared.[55] His denials, however, were not altogether justified. Perhaps he hoped members had forgotten the $200,000 figure pulled out of thin air and bantered about just before the dome was authorized.

The first cost estimate came from the architect. By taking into account the price of iron already bought for the Capitol extension and the approximate amount that would be needed to build the dome, Walter predicted that the cost would be around $945,000. The accuracy of the estimate would depend entirely upon the future price of iron. Nobody could have known in the spring of 1856 that the dome would ultimately cost $1,047,271, about 10 percent more than the architect's estimate. Because Walter had vastly overestimated the weight of the iron, however, it was more luck than skill that brought his estimate so close to the final figure.

While Walter and Meigs reassured skeptics in Congress, the first shipments of ironwork were being delivered to Capitol Hill from the Baltimore foundry of Poole & Hunt. It supplied seventy-two brackets weighing 6,116 pounds apiece and measuring more than seven feet high and fifteen feet long. Used in pairs to cantilever the columns of the peristyle beyond the old walls of the rotunda, the brackets were tied together by a riveted ring of plate iron one and three-quarters inches thick. More than five million pounds of brickwork was laid around, through, and over the brackets, binding them to their foundation. This masonry work was an immense undertaking. A circular wall 300 feet in circumference, twenty-six and a half feet high, in widths varying from about three to six feet, was built, reinforced with iron hoops, and knitted to a structure built thirty years earlier. The success of everything to follow would depend on the integrity and strength of that base. The work was finished just before the winter of 1857 set in. To cover the brickwork on the interior, Walter designed seventy-two cast-iron panels enriched with ornamental moldings, which were attached to the masonry and surrounded by painted plaster. The panels were made by Poole & Hunt for four cents a pound. Above this band, two cornices outlined a frieze about eight feet high. Originally the frieze was intended to be filled with sculpture in alto-relievo depicting the history of America, but this plan was thwarted by the death of the sculptor Thomas Crawford. Instead, Meigs' favorite fresco artist, Constantino Brumidi, would imitate the effect of sculpture using a painting technique called *grisaille*. This less expensive decoration was not begun until the 1870s, well after the dome was completed. Indeed, it was not finished until the 1950s.

After the brackets were installed and the brickwork was laid and allowed to dry, the dome was ready for the thirty-six columns that would

Center Building
ca. 1857

The paired brackets that would hold the dome's columns may be seen in this construction photograph. Also shown are three workmen standing on the Bulfinch terrace amid marble debris.

Delivery of Iron Column Shaft
1856

Shipped by train from Baltimore, the iron columns for the dome were then hauled from the station to the Capitol on horse-drawn carriages.

comprise one of its most conspicuous architectural features. Meigs asked ironworkers in New York, Pennsylvania, Delaware, Maryland, Virginia, and the District of Columbia to submit bids for the columns. By offering to cast the columns for three and two fifths cents per pound, the firm of Poole & Hunt received the contract. The columns were cast in sections: the capital and base would slip over the ends of the shaft, which was cast as a single piece. Foliage for the capitals was cast separately and attached to the bells by screws and rivets. Twenty-seven feet high, each column weighed approximately 10,000 pounds and cost $399 delivered to Washington. To save weight and money the shafts were cast hollow. This feature also increased their utility: some were used as down spouts to conduct water off the dome and others were connected to chimneys under the peristyle, the smoke from which would have no other means of escape. The last shipment of columns arrived from Baltimore in November 1856.

THE GREAT ORCHESTRATION

Meigs' talent for administration was complemented by amazing energy and stamina. His attention to detail brought him into the most minute aspects of the extension, its decoration, construction, and management. He arrived at his office between nine o'clock and ten in the morning, greeted by mounds of paperwork and visitors anxious for his attention. After noon he went to observe Congress, when it was in session, to see if anything was being said about his projects. The rest of the afternoon was spent going over the works from top to bottom to see if everything was being done correctly. "Sometimes I correct an error," he wrote, "but generally I find nothing to alter, for the workmen and the overseers are pretty well used to my methods, and I find all going right."[56] Although he relied on a staff of assistant engineers, foremen, craftsmen, artists, and clerks as well as various contractors, Meigs was responsible for everything concerning the project and defended his name and reputation against any hint of impropriety. As Walter learned, and as Latrobe had realized long before, there was never a shortage of critics whose slanders were motivated by jealousy, lost contracts, malice, and a simple love of the sport. Through the strength of his convictions and personality, however, Meigs was well equipped to defend himself, and as long as Davis was secretary of war he enjoyed the unswerving support of the administration.

Keeping control on the cost of the Capitol extension was a matter of considerable importance. Meigs was spending a great deal of money for such things as marble sculpture and English floor tiles that were never thought of when the project began in 1851, and only the strictest economy would help to pay for these luxuries. The most expensive aspect of the project was the marble

Detail of Exterior Marble Work
Principal Entrance, South Wing

Installed in 1855, this frontispiece illustrates the high-quality craftsmanship of Provost & Winter's carvers as well as the engaging detail of Walter's design. Similar in spirit to the iron consoles in the Library of Congress, the brackets were rich essays in the rococo revival taste in decorative arts. Corn, maple leaves, and grape clusters were incorporated into the imaginative composition. Above, the cornice was carved with a row of Grecian honeysuckle ornaments called "anthemion." (1965 photograph.)

work. He spent hours studying its details in order to determine the proper value of cutting, carving, and setting tasks. Some cutting and carving jobs were not spelled out in the contract with Provost & Winter and obliged Meigs to fix a fair value for specific work on a case-by-case basis. Peering through a spy glass or climbing on a ladder, Meigs studied the way George Blagden had pieced together the cornice of the old Capitol in the 1790s, comparing it to the way Provost & Winter proposed to accomplish the same task for the extension. The contractor wanted to use four courses of stone to make the cornice, one more than used in the old building. But Meigs wanted to use three courses to reduce cost. Since the appearance would be the same, his decision combined the advantages of economy without sacrificing stability or beauty:

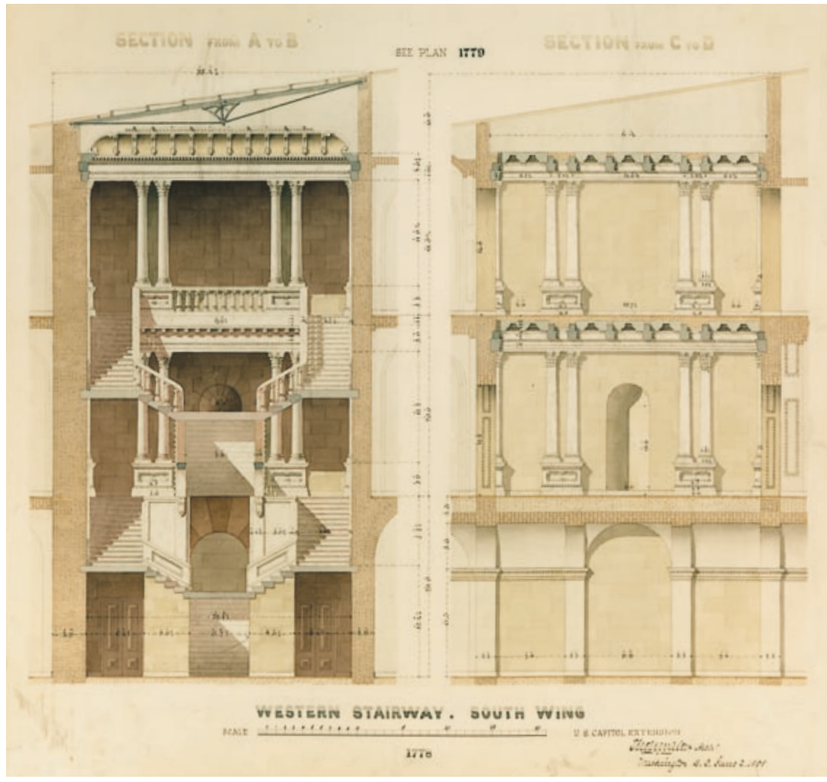
> I find by rough calculation, which I will make more carefully, that in the saving of material and work though I have made a much more durable and strong cornice than the 4-course one proposed in the contract, I have saved about $22 per foot; and as there are 1,800 feet of this cornice, this is in the whole a saving of $39,600.[57]

Meigs also established the price paid to Provost & Winter for carving the capitals for the columns ($930) and pilasters ($537) destined for the vestibules leading from the east porticoes to the House and Senate chambers. Following the tradition established by Latrobe forty years earlier, Walter Americanized these capitals, mingling tobacco, corn, and magnolia plants among the acanthus leaves and volutes that are trademarks of the Corinthian order. The design was put into the hands of Francis Vincenti, an Italian modeler and sculptor who prepared a plaster model for the carvers to follow. Meigs traveled by horseback to a farm in Maryland to gather tobacco leaves to ensure a faithful representation.

Two monumental staircases were provided in each wing for visitors going to the galleries overlooking the chambers. Ever since the floor plans were revised in 1853, these staircases had been envisioned as principal ornaments of the extension—majestically scaled, generously proportioned, and richly finished. They were intended to be as grand and good as those in European palaces. Sometimes described as "imperial," they consisted of a broad flight of steps rising to a landing where the steps split into two flights. A mixture of Italian white and Lee clouded marble was used for the steps of three of these staircases, the same three employing a deep reddish brown marble from east Tennessee for handrails, balusters, wainscoting, and supporting columns. The column shafts were topped with metal capitals cast in Philadelphia by Cornelius & Baker, a firm more usually associated with chandeliers and other lighting fixtures. The model for the capitals was made under Meigs'

watchful eye by sculptors working from the architect's drawing. After the first capital was received from the foundry in September 1855, Meigs thought the workmanship good but noted that there was room for improvement. He was particularly concerned that the acanthus leaves around the bell were too thick, which the engineer thought was a common fault in metal foliage. The defect was not fatal, but Meigs encouraged the foundry to make better castings if they could.

Walter was happy that metal capitals were used with the beautiful Tennessee marble, which



Western Stairway, South Wing
by Thomas U. Walter, 1858

Four monumental marble stairways were among the great interior features of the Capitol extension. Large history paintings were intended to hang in the upper landings, which were lighted from above.

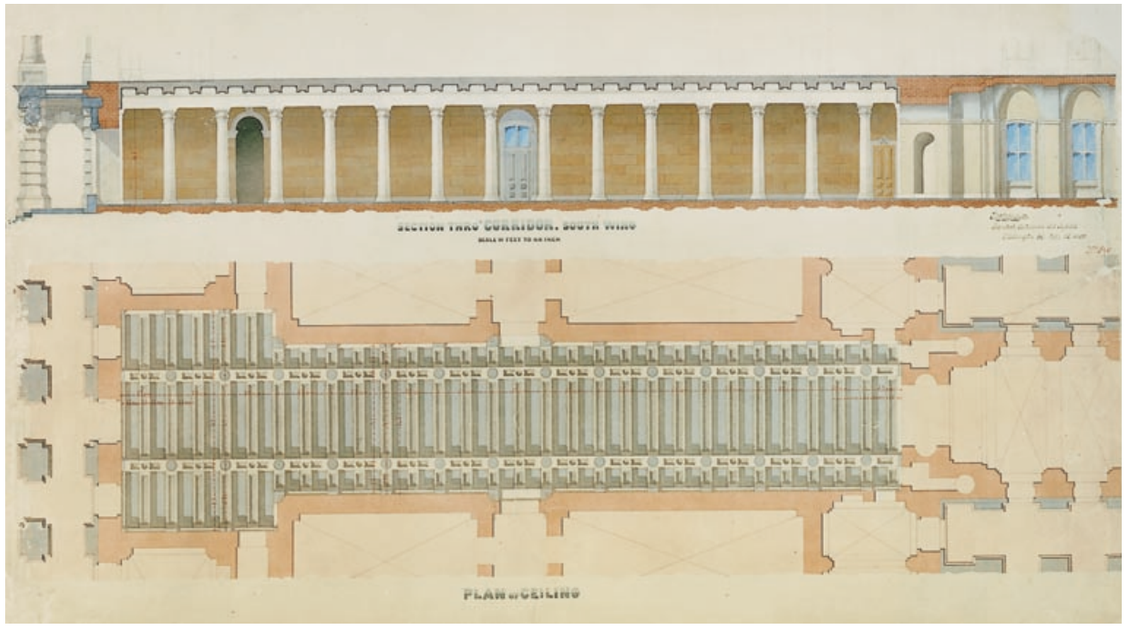
East Monumental Stairway, Senate Wing

Rich brown Tennessee marble with metal capitals support a marble and iron ceiling over the stairs. (1995 photograph.)

Section Thro' CORRIDOR, South Wing

by Thomas U. Walter
1855

The principal feature of the south wing's first floor was an impressive corridor lined with twenty-eight Corinthian columns.



Hall of Columns Corinthian Order

by Thomas U. Walter

Walter blended the tobacco plant and thistle into a Corinthian capital in his first American order. It followed the tradition begun by Latrobe in 1809, when he introduced the corn order. Instead of pilasters, Walter used antae along the walls to correspond with the columns. No tobacco or thistle was incorporated into these capitals, which displayed more conventional classical carvings instead. (1960 photographs.)

he claimed had no equal for interior stonework. Pure white Italian marble was used in the fourth staircase, which was located in the western part of the Senate wing. The exquisite capitals were carved with a delicate skill unequaled anywhere in the building. Meigs originally wanted to use a green marble from Vermont (commonly called "verd antique") for this stair but was not able to find enough of suitable quality. When asked why Meigs wanted to make one stair from a different marble, Walter replied that the engineer acted on the principle that "variety is the spice of life."[58]

A long row of marble columns with corresponding antae was one of the remarkable features planned for the ground floor corridor in the south wing. Walter produced an Americanized version of the Corinthian order for these columns by designing a range of tobacco leaves above the obligatory acanthus leaves. Between the tobacco leaves, he introduced the thistle plant as an elegant embellishment that fit well. When the corridor was first designed, it was thought that the ceiling would be marble, but it was later changed to iron. The change was probably made because marble was in such demand for other purposes and was more expensive than iron. Five foundries were asked to bid on the ceiling, and the job was awarded to Hayward & Bartlett of Baltimore on March 6, 1855.

They offered to make the patterns, cast the iron, and deliver the ceiling for three and a half cents per pound. By comparison, the high bid came from Thurston Gardner of Providence, Rhode Island, who proposed six cents a pound. Installing the ceiling would be a task of some delicacy, and at one point Walter thought that Meigs would never allow the ironworkers to do it:

> We shall have a range of elegantly wrought marble columns of a new order of my own design, with delicately sculpted tobacco leaves, thistle, cotton &c. costing a mint of money, besides corresponding pilasters around all the walls, and I am sure he will never consent for any contractor to hammer and hoist and work in such a forest of fragile beauty.[59]

But, contrary to the architect's expectation, Meigs accepted Hayward & Bartlett's offer to install the iron ceiling for one and a quarter cents per pound, with the scaffold and hoisting apparatus supplied by the government.

Like all corridors in the Capitol extension, the so-called "hall of columns" was originally intended to be paved with thick slabs of marble. Brilliantly polished marble would be a startling contrast to the dull sandstone used in the passages of the old building. But again, marble was greatly wanted for other purposes and Meigs began seeking alternative flooring materials. In *The Engineer's Journal* he saw advertisements for encaustic tiles manufactured by the Minton Tile Company of Stoke-Upon-Trent, England, and he made a mental note to look into substituting tile for marble floors. The main advantage offered by Minton tile was its durability. Unlike glazed tiles in which the color and pattern are laid on top of the surface, an encaustic tile consists of patterns made of colored clays inlaid into the tile. As the tile wears down, the color and pattern are unaffected. For plain tiles, the whole thickness is made from colored clay.

At the time he was ready to inquire about the tiles in September 1854 Meigs grew concerned to see that the company had stopped advertising and wrote to ask if tile production had been abandoned. He was particularly interested in Minton's tiles because they promised to be as beautiful as durable. In fact, considering the style of decoration he planned for the interiors, Meigs hoped the company could make more elaborate and elegant floors than he had yet encountered in America. "The examples of your tiles which I have seen in this country," he explained,

> are confined to the smaller size & plainer figures. Our building is a Roman Corinthian edifice of white marble—above 750 feet by 270 & contains many fine public rooms & Halls & corridors and I am desirous of obtaining the best floors that can be made.[60]

In a few weeks, he received samples of Minton tile from one of the company's American agents, Miller & Coates of New York City. He thanked the agents and advised them that work had not progressed to the point where finished floors would be laid any time soon. He also needed time to study the designs and determine their appropriateness for the Capitol.[61] With his letters to England and New York, Meigs initiated a long-term and mutually satisfying association with the tile makers and importers.

Convinced that Minton tile was the best flooring available, Meigs ordered it in vast quantities. Wooden casks packed with tile began arriving in New York from Liverpool in the fall of 1855. Through letters to the secretary of the treasury Meigs made sure they arrived duty free. The casks were forwarded to Washington by rail accompanied by Miller & Coates' workmen, who laid the tile over a five-year period at an average cost of about $1.75 a square foot. Elaborate designs could cost as much as $2.03 per foot. The designs for specific rooms and corridors were made by Miller & Coates, who sent detailed sketches for Meigs' approval. Undoubtedly, the opinions of Walter and others were sought, but the final selection of pattern and color rested with the engineer. More important rooms were treated with elaborate centerpieces surrounded by fields of color and multiple geometric or architectural borders. The effect was similar to the composition of large, intricately woven carpets, but the colors were bolder and the reflection of light off polished tile was more dazzling. During the winter months, floors in most offices and committee rooms were covered wall to wall with carpets held in place by lead weights sewn into the bindings. In other rooms Pringle Slight's men laid strips of walnut or cherry to which the carpets would be tacked. During the summer months the carpets were taken up and the cool tile left exposed. Less important spaces were treated with simpler and cheaper designs, but even

some of the dimly lit rooms in the cellars were paved with cheerfully colored tiles.

While acres of tile paved the corridors of the Capitol extension, the muddy streets and footpaths of Washington ensured that frequent cleaning would be necessary to keep the floors shining. Meigs anticipated the heroic scope of the task and thoughtfully provided low, shallow closets throughout the corridors where cleaning personnel could readily draw pails of water to mop the floors. Drains at the bottom carried off dirty water. These handy closets were barely thirty inches tall, with arched doors made of cast iron.

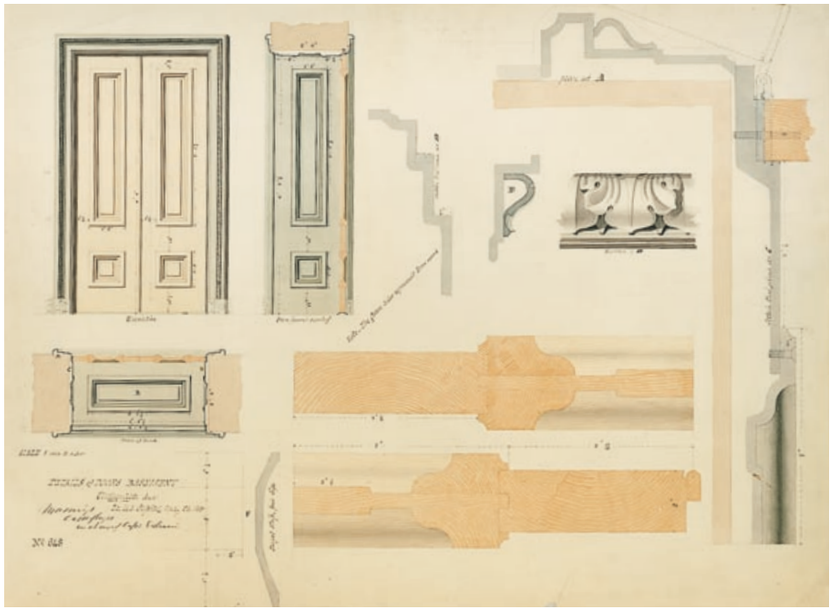
Plumbing for water and gas was installed by J. W. Thompson & Brothers of Washington under a contract awarded on June 15, 1855. A four-inch cast-iron water main was laid under corridor floors to supply water for wash basins and drinking fountains in the offices, committee rooms, and cloakrooms. The marble-topped wash basins were made in the carpenter's shop from walnut, a wood that Pringle Slight described as "very serviceable" for the purpose.[62] Air ducts built into the walls for ventilation and heating purposes were also used to run pipes vertically. Water closets were fitted with the "most approved apparatus" and were connected to iron waste pipes leading to the main sewer under the cellar floors. A three-inch gas main was laid under the floors except in the upper story, where four-inch mains were used. Principal spaces such as committee rooms, offices, and public corridors were fitted with elegant chandeliers hung in the center of the vaulted ceilings. Sconces were affixed to the hollow iron window trim, through which the gas pipes were conveniently run. By using flexible tubes made of gutta-percha (a material similar to rubber), portable desk lamps were fed gas from sconces or chandeliers. Out-of-the-way storage rooms and cellar passages were illuminated by simple pendant lights. With few exceptions the gas lighting fixtures were made by Cornelius & Baker, a firm that specialized in elaborate castings combining naturalistic foliage with human and animal figures. For evening sessions of Congress, Meigs wanted to cast enough artificial light into the House and Senate chambers through the skylights to turn night into day, hoping the effect would be wondrous. Just above the glass ceiling, hundreds of gas burners were installed so close together that only one ignition source was needed to light the whole apparatus.

During the second week of January 1856, Meigs announced that the first rooms in the north wing were finished. Six chambers on the west side of the first floor were ready to receive the U. S. Court of Claims, which senators allowed to be temporarily accommodated in rooms ultimately destined for their committees. The first key Meigs handed over was to the northwest corner room (modern day S–126) where the court was scheduled to meet on Monday, January 14, 1856. Although the heating apparatus was not yet operational, the rooms made a fine suite, which Meigs described just before the court moved in:

> These rooms have encaustic tile floors, marble skirting [baseboards], cast iron door and window casing, and are as permanent and indestructible as it is possible to make rooms. The door and the window shutters and sashes are all wood, for the sake of swiftness and ease with which they are maneuvered. Six of these rooms are nearly ready for use, and the court will have the use of the whole of them. Furnaces have been put up in the cellar and have been kept going for some weeks to try to warm them.[63]

The mass-produced door and window frames were another prominent use of cast iron. (It was not, however, a novel idea. In the early 1830s, Walter had used iron for that purpose in his first large commission, the Moyamensing Prison in Philadelphia.[64]) Meigs installed iron frames on the first floor as a trial to determine whether to continue with them throughout the extension or to adopt another material. After looking at the iron frames in the Court of Claims rooms Meigs decided to continue their use: "Those in the basement look so well and substantial," he wrote, "that I think nothing else will do, unless we build them of marble, and that takes too long."[65]

Forty-eight carpenters working for Pringle Slight made all the doors, windows, and interior shutters that constituted the greater part of the Capitol's limited woodwork. (Meigs originally wanted to use iron shutters "for the safety of valuable papers" but later abandoned the idea.[66]) Before the finish work was begun, these men were mainly engaged in building the centers on which the brick arches and vaults were constructed. At the beginning of 1855 Slight wanted to start making doors. After the doors were put together and wedged, he

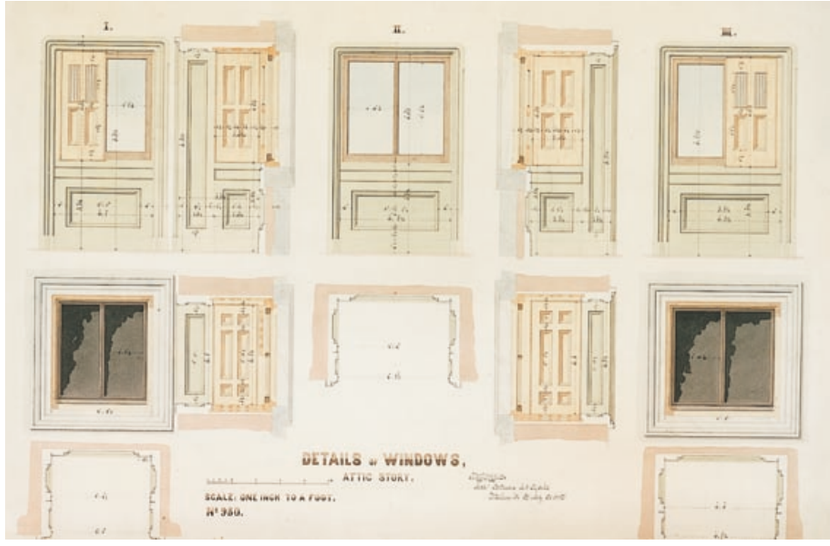


Details of Doors, Basement
by Thomas U. Walter, 1855

Meigs used iron for door and window casings because marble was too expensive and took too long to install. Iron frames were mass produced in various foundries, an example of the increasing industrialization of the building arts during the mid-nineteenth century.

recommended storing them for six months in a dry place. He assured Meigs that he knew the door business, saying he personally had made all the doors leading to the Senate vestibule thirty-five years earlier and that they were still as good as new.[67]

Slight's pride in his handcrafted doors notwithstanding, the building arts were making increasing use of mechanical power and machinery, which Meigs celebrated as a blessing. He admired what machinery could do, the burdens it lifted, and the time it saved. Efficiency was important, and he made comparative analyses to show what labor and money his machines were saving the United States Treasury. For instance, one of his foremen compared three different modes of carrying brick to the top of the walls and the cost of each. He found that a good hod carrier could raise 1,000 bricks a day in cool weather at a cost of $1.25. Then he found that six laborers making $1.05 a day using hand-powered machinery could raise 9,500 bricks at a cost of sixty-six cents per thousand. Finally, with a small steam engine, 24,000 bricks could be hoisted to the same level at a cost of twenty-three cents per thousand. The advantage of using the power of steam to ease that expensive, back-breaking work was obvious. Meigs also noted that the work could thereby be carried on during the summer months, when it was too hot for ordinary



Details of Windows, Attic Story
by Thomas U. Walter, 1856

Unlike the double-hung sash used in the old Capitol, Walter designed casements for the third-floor windows in the extension. When fully opened, these casements allowed air to flow through the entire window area.

Details of Senate Chamber
by Thomas U. Walter, 1855

Mythological figures were drawn in the niches that would later be occupied by busts of early vice presidents.

mortals to endure.[68] Such comparisons justified the government's investment in expensive machinery and showcased Meigs' attention to economy and efficiency.

Logan, Vail & Company of New York was one of several firms that sold Meigs portable steam engines for various tasks, such as raising brick or mixing cement. His favorite supplier of pulleys, drills, lathes, planners, vices, hammers, and saws was the firm of Gage, Warner & Whitney of Nashua, New Hampshire. Power drills were bought from Shriver & Brothers of Cumberland, Maryland. Wire rope was purchased from John A. Roebling of Trenton, New Jersey, who later became famous for designing the Brooklyn Bridge. Hydraulic lifts were bought filled with whiskey to keep them operational year-round (Whiskey, unlike water, would not freeze in winter.) With these lifts, a man of ordinary strength could raise a load weighing seven tons.[69] An extensive shop for cutting marble and turning column shafts was linked to a central steam engine that also powered a wood shop, machine shop, and finishing shop. The saw in the stone mill did the work of forty men at one fifth the cost. Hand-powered tools could drill fifty holes a day in the roof rafters and purlins; sixty holes an hour could be drilled with the power of steam. Each day this large steam engine consumed a ton of coal, but the time and money it saved repaid the government handsomely.[70]

Building materials were purchased from suppliers around the country and abroad. For the roofs Meigs bought copper weighing thirty ounces a square foot from Crocker, Brothers & Company in Massachusetts and sent it to New York to be corrugated; he was thus able to cover the roofs with a material that was lighter than and just as strong as his first choice—cast-iron tiles.[71] Plate glass from France was obtained through DeCourcy & Noell of New York (at $10.50 per pane), while

Capitol Workshops
ca. 1857

Looking northwest, this photograph was taken from the roof of the new Senate wing and shows Meigs' workshops in the foreground. Iron columns intended for the dome were stored nearby.

English glass for the dome was ordered from Theodore Roosevelt Sr.'s plate glass warehouse, also located in New York. With so much plate glass wanted at the Capitol—a market worth at least $150,000—Meigs hoped to encourage American manufacturers to begin casting glass.[72] Although for the time being he was forced to buy foreign plate glass, he could obtain high-quality domestic glass for skylights from William B. Walter of Philadelphia. Ornamental stained glass was obtained from J. & J. H. Gibson, a firm also located in Philadelphia.

The heating and ventilation system, one of the more daring and controversial aspects of the Capitol extension, was developed by Nason & Dodge, a large and experienced New York firm hired in 1855. They offered a 20 percent discount on all pipes and fittings from their warehouse, a deal Meigs found irresistible. But he was equally impressed with the firm's scientific and mechanical skill, an uncommon and most welcome combination. All drafting was done by the contractor under the supervision of Robert Briggs, the firm's civil and mechanical engineer, who was later hired by Meigs. After extensive consultations with the captain of engineers, Nason & Dodge developed a method of warming the extension that was an early version of a forced hot air system. Steam-powered fans of various sizes blew air over massive coils of pipe filled with hot water. For the House chamber, a fan sixteen feet in diameter turned by a thirty-horsepower steam engine delivered 1,250 cubic feet of air with each revolution. At eighty revolutions per minute, the fan could replenish the air in the chamber every five minutes.[73] Meigs calculated that the quantity of pipe needed to warm the House chamber alone was 50,000 linear feet, the equivalent of 16,000 square feet of heating surface.[74] The warm air was distributed throughout the two wings by ducts built into the thick brick walls. In the chambers, air could come through registers in the floor or, if the fans were reversed through apertures in the ceilings. For each wing two fans were provided—one for the legislative chamber and one for the remaining rooms and passages. Air was exhausted through grilles in the iron ceilings over the four grand staircases or over the chambers. Eight boilers of the "modified locomotive form" were supplied by Murray & Hazlehurst of Baltimore.[75] Weighing about 18,000 pounds apiece, they measured sixteen feet long by six feet wide, were made of double-riveted Baltimore charcoal plates, and cost fourteen and a half cents per pound. Spaces under the terrace were converted into boiler rooms, thus distancing the effects of an explosion while keeping them convenient to nearby fuel storage areas.

DECORATIONS

In July 1853, soon after President Pierce accepted the revised design of the extension, Meigs wrote Massachusetts Senator Edward Everett asking him to recommend artists to fill the east pediments with sculpture. A former congressman, governor of Massachusetts, president of Harvard, and secretary of state, Everett had played a leading role in the Capitol's development during the Bulfinch period and was now asked to contribute his urbane and refined taste to Meigs' search for sculptors. The pediments were the engineer's special contribution to the exterior appearance of the wings, and he wanted to commission monumental sculptural groups that would do credit to the age. He also wished to top the principal doorways with marble statuary to complement the bronze doors that he intended to install in those openings. Everett recommended Hiram Powers and Thomas Crawford as artists whose statuary would honor both the Capitol and the country.

After receiving Everett's recommendation, Meigs spoke to the secretary of war and was directed to offer the artists work. Like Latrobe and Jefferson a half-century before, Meigs and Davis considered sculptural enrichment a permanent part of the building's fabric and, therefore, payable from funds appropriated for construction. In this regard architectural statuary for the outside pediments was different from statues that might be commissioned to fill the niches found inside. Meigs had no authority to commission works for these interior spaces but hoped they would not stand empty for long: the vacant niches would appear like open mouths needing to be fed statuary. Similarly, large stretches of empty wall space would cry out for great history paintings.

Eastern Elevation of North Wing, Capitol Extension
by Thomas U. Walter
ca.1855

Pediments were added to the eastern porticos to accommodate sculptural decorations.

In August 1853 the commissioner of public buildings began installing a group of statues commissioned by Congress in 1837 for the north cheek block of the center steps. Commissioner French hired Washington sculptor Clark Mills to oversee moving the statuary from the Navy Yard to the Capitol.[76] Consisting of three main figures, *Rescue* by Horatio Greenough was a companion piece to another group entitled *Discovery of America* by Luigi Persico, which had been installed nine years earlier on the opposite cheek block. Both sculptures were far from satisfactory works of art. Although created by talented artists, they were embarrassingly clumsy displays of stiff gestures with little expression and awkward interactions among the figures. The sight of Greenough's *Rescue* being unpacked prompted Meigs to take up his pen and write the sculptors recommended by Senator Everett. His letters admirably conveyed his high hopes for the Capitol's artwork and contained the usual warnings about incomprehensible allegory and offensive nudity:

> The pediments and doorways should be a part of the original construction of the buildings, and I do not see why a republic so much richer than the Athenian should not rival the Parthenon in the front of its first public edifice. Permit me to say that the sculpture sent here by our artists is not altogether adapted to the taste of our people. We are not able to appreciate too refined and intricate allegorical representations, and while the naked Washington of Greenough is the theme of admiration to the few scholars, it is unsparingly denounced by the less refined multitude.[77]

Powers replied from Florence in a terse letter saying that he had neither the time nor the desire to propose sculpture. Crawford, on the other hand, was delighted with the offer. He wrote from Rome with an acceptance of Meigs' proposal, agreeing to produce a "work intelligible to our entire population." He also thought that esoteric symbolism had no place in America, saying, "The darkness of allegory must give place to common sense."[78] With amazing speed, Crawford designed a group of fourteen figures, had the models photographed in Rome, and mailed the photographs to Meigs by the end of October. Along with the photograph came Crawford's bill for full-scale models: $20,000. With the approval of both the president and the secretary of war, Meigs accepted the artist's terms a month later. The approval began a patronage that, while not particularly long lasting, was mutually agreeable and wonderfully productive.

In the spring of 1854, Crawford finished the first full-size models of his pediment group entitled *Progress of Civilization*. A figure representing America stood at the center, flanked by groups of European pioneers and vanquished American Indians illustrating the establishment of European culture on the North American continent. The figures assumed an agreeable variety of expression, attitude, and costume that pleased Meigs considerably. He took the photographs to the secretary of war and was quickly instructed to tell the artist to change the head gear worn by the central figure. Crawford had the figure of America wearing a liberty cap, a device worn in ancient Rome by freed slaves. The cap had been revived in the iconography of the American Revolution as a popular symbol of freedom from English tyranny and was also part of the revolutionary iconography of France in the 1790s. Although the floppy cloth cap had been part of the American image for many years, Davis objected to it because, he reasoned, Americans had never been enslaved and, therefore, could not wear the badge of a freedman.[79] (For unexplained reasons, the cap was retained despite Davis' objections.) Later Davis criticized the design of the young Indian boy because it did not have the face or hair of an Indian.[80] The Woodsman did not please Davis either: he thought that the figure's attitude

was not that of a "wood-cutter chopping." Meigs agreed, thinking Crawford must not have had many occasions to observe wood being chopped because he was born and raised in New York City.[81] The artist took these objections in stride, preferring to make changes rather than fight battles that he would surely lose.

Sculpture was the first form of decoration that Meigs undertook, but its use was not as extensive or as controversial as the frescoes and other painting that he commissioned later. While in New York scouting the city for brick, or on his way to inspect the marble quarry in western Massachusetts, Meigs haunted book stores and libraries looking for material to help him devise painted decorations for the extension. He regretted that he had not traveled to Europe, but he hoped that by studying grand European buildings shown in books he might glean ideas to make the Capitol a building to stand a fair comparison with any of them. In August 1854, he was in New York's Astor Library looking at three volumes with colored engravings of Raphael's works at the Vatican. Recalling the splendor of the rooms, Meigs wrote: "They are very beautiful, rich, and harmonious in color, simple and beautiful in design. I wish I could see the rooms themselves. This book will give us ideas in decorating our lobbies."[82]

When they were available for purchase, the captain acquired illustrated books for his office. On November 18, 1854, for instance, Meigs returned to Washington with several books purchased from William Schaus in New York containing illustrations of architectural ornaments. He took the liberty of buying them because they contained examples of high-style decorations needed for the walls and ceilings of the extension. While he did not have the authority to make the purchase, Meigs hoped that Davis would approve, which was never a problem.[83] In another instance, he was given permission to buy *Galleries Historique de Versailles* from Eli French's bookstore in New York. It was extremely expensive—$510—but he thought it was worth every penny. It was beautifully bound, large, and extensive, illustrated with elaborate engravings of Louis XIV's palace. Meigs routinely purchased publications on ventilation, acoustics, fireproofing, ironwork, hydraulics, and bridge building for the office, but he especially prized illustrated volumes showing the great buildings of Europe and their interior decorations.

At the beginning of November 1854, Meigs was again preparing to leave Washington for a trip north, this time to Boston, where he was going to inspect a facility that made papier-mâché ornaments. On the way, he took the opportunity to catch up on the New York art scene and also stopped by the quarries to urge speedier delivery of marble. While in New York, Meigs went to see a painting by Emanuel Leutze showing George Washington rallying retreating troops at the battle of Monmouth. He thought the artist capable of producing a similar painting for one of the staircase landings. Meigs next went to a bookstore, where he ordered some more works showing ornaments that, although not in the classical style, would give him useful ideas for decorating a few out-of-the-way rooms on the third floor. With these books and the confidence gained by looking at, studying, and thinking about art, Meigs hoped to "make out a system of decoration for the extension without Mr. Walter's help."[84] For Meigs it was increasingly important to establish his own reputation as a designer as well as a builder. He envied Walter's celebrity and wanted to enhance his own standing in the world of art. With the resources at his command, Meigs intended to become a modern-day Medici, fully aware that history remembers great patrons as well as great artists.

While in New York Meigs stayed, as usual, at the Brevoort House, a large hotel with 140 rooms. He liked its varied, high-quality decorations and learned from the owner that Emerich Carstens designed every room, no two of which were exactly alike. After visiting Boston, Meigs returned to New York and called upon Carstens to ask if he would help design the decorations for the walls and ceilings of the Capitol extension and supervise the work when the time was right to start painting. Carstens readily indicated his willingness to move to Washington for a salary of $1,200, and he gave Meigs a sample of his work to show Walter. Meigs returned to the Capitol and, after consultation with the architect, wrote Carstens to "come on," which he did in 1856.[85]

The same day he met Carstens in New York, Meigs stopped by the Academy of Music to see the building's decorations. He was struck by the

beautiful plaster work and intricate papier-mâché that he learned was the work of Ernest Thomas and his brother Henri, both recent arrivals from France. Their work was superior to what he had seen in Boston. Visiting their studio on Wooster Street, he saw other examples of their skill at designing and making plaster and papier-mâché ornaments. Meigs was impressed with the high relief and crisp detail possible in cast or molded papier mâché. He also liked the fact that it was cheap.[86] He arranged for specimens of their work to be sent to Washington and soon ordered all the papier-mâché ornaments for the ceiling over the House chamber from the Thomas brothers. Some ornaments were classical (modillions, dentils, eggs and darts, etc.) and some were inspired by the "natural products of the country." The rosettes in the House chamber, for instance, were composed of cotton plants at various stages of growth. Walter designed these from nature without reference to published illustrations.[87] Meigs assumed that the Thomas brothers would do the modeling in New York, with the casting done in Washington to save the expense of packing and freight. Almost two years later, after the House ceiling was finished and the Senate ceiling was under way, Meigs persuaded Ernest Thomas to take charge of the ornamental plaster department at the Capitol.[88] Thomas' pay was set at $7.00 a day, while the four modelers he supervised earned from $2.50 to $5.00 per day.[89]

In employing the immigrant Thomas brothers and in hiring Ernest Thomas as a foreman, Meigs was guided by his estimation of their abilities rather than considerations of nationality. He used the same criterion in selecting artists to enrich the Capitol—and he had plenty from which to select. By the mid-1850s his office was besieged with painters, sculptors, and modelers hungry for work. Many left disappointed when their skill failed to impress but there was never a shortage of new applicants. Meigs' mailbox overflowed with letters of inquiry or support, and many artists came to the office on the arm of a friendly representative or senator. Critics scolded the engineer for refusing to commission some of America's most famous artists while he routinely gave jobs to the foreign born. Few asked, for example, if Hiram Powers had been offered a commission (he had) or if foreign artists such as Constantino Brumidi worked better or cheaper (they did). There was still a general

Bronze Doors
by Thomas Crawford, 1855–1857

Entering the Capitol extension was intended to be a noble and educational experience. In 1855 Meigs commissioned Crawford to make a pair of doors for the Senate showing scenes in the life of George Washington and events from the Revolutionary War (above). Crawford designed similar doors illustrating episodes in American history for the House of Representatives (right). (1988 photographs.)

Detail from Senate Doors: *Washington Laying the Capitol's Cornerstone, 1793*

feeling among American artists that Meigs favored foreigners. In late 1854 a Washington newspaper, the *American Organ,* accused him of hiring foreign workmen because, it supposed, he could "kick and damn them with impunity," while native-born workers would never stand for such treatment.[90] This paper, a mouthpiece of the secretive Know Nothing party, was but one source of anti-immigrant prejudice that was strongly felt throughout the country at the time. This prejudice would continue to grow over the next few years and would prove a significant factor in the engineer's eventual removal from the Capitol extension office.

On January 6, 1855, Meigs learned that Crawford had shipped the first five models for the eastern pediment. He was also at work on bronze doors depicting events of the Revolution. About six weeks later a young sculptor from Michigan named Randolph Rogers called on Meigs with photographs of his work, much of which had been produced in Italy. In the course of their conversation, the subject of bronze doors came up and Rogers expressed an interest in making a set. Meigs thought that the entrances into the chambers might be a suitable place to hang bronze doors but later determined that the connecting corridors would be better: thus, whether entering the wings from the outside

or the inside, the public would be greeted with glorious gates laden with sculpture. It would be yet another way to distinguish the artistically decorated extension from the old Capitol.

Rogers was shown the window behind the Speaker's rostrum in the hall of the House of Representatives that would become a door once the connecting corridor was built. This opening had an arched top that presented another field for sculpture. Meigs promised to send a tracing giving the exact dimensions of the opening. In the meantime, Rogers was asked to think of an appropriate story for the doors to tell.

While Meigs and Rogers discussed sculpture, they were joined by another sculptor, Alexander Galt of Virginia, who wanted permission to display a bust of Thomas Jefferson in the rotunda. (Meigs referred him to the commissioner of public buildings, who subsequently denied the request.) The three men went to Francis Vincenti's studio and found the resident sculptor modeling a bust of a Chippewa chief named Beeshekee. Although the bust was made contrary to the prohibition against non-architectural statuary, Meigs considered it an important record to be made for the sake of posterity: it would be interesting "500 years hence."[91]

While in Vincenti's studio Meigs showed his guests plaster casts made from nature that were being stored until needed for decorations. Personally, he was quite taken by a fine cast Vincenti made of a coiled snake, and he hoped to expand the representations of animals in the collection to include fish, game, and "beaked fowl."[92] He had seen a cast of a plucked chicken in Philadelphia and made a mental note to have one made for the Capitol. But for decorative purposes, Meigs was particularly fond of snakes, bagging them during walks around the Washington Aqueduct. Returning to the Capitol, he set them loose in the office, fascinated by the bedlam that followed. On one occasion, Meigs marveled at a snake that had been injured during its capture but was still "full of life and of fight."[93] Understandably, visitors were taken aback at being greeted by the snakes, but the engineer admired how the reptiles would eventually come to rest among the cool marble samples stored on shelves lining the office walls. On another occasion, he coiled a snake around a walking stick and lifted it to the chandelier, where it wrapped itself around the gas pipe and slithered furiously. Meigs was fearless himself but warned his employees to be careful when handling snakes. In the early winter of 1856, for instance, he found that the cold was killing all his rattlesnakes. One fine specimen remained and he wanted a plaster mold made before it too was "spoiled." He cautioned Federico Casali, one of his modelers and bronze casters, to be careful because a bite would be fatal. Despite the danger Casali produced wonderful castings, some of which Meigs thought were more perfectly detailed than the living creatures. These castings, or ones similar, were later incorporated into the bronze pulls decorating the maple doors leading into the House and Senate chambers.

When Meigs had begun to plan the Capitol decorations, he thought that most Americans who called themselves artists were not quite up to European standards of skill, taste, and talent. He worried that his high hopes for the interior decoration would be disappointed by using the domestic talent available to him.[94] By the time the project was far enough along to begin decoration, however, he may have realized that the revolutionary turmoil in Europe in the 1840s had flushed out many artists among the thousands of expatriates who came to America seeking peace, freedom, and opportunity. The Capitol extension and the captain of engineers fell heir to many of the best of them. One of the first to appear, Constantino Brumidi, was a political refugee who had spent time in jail before being allowed to leave Italy for good. He was soon joined by other European artists and craftsmen who would help fulfill Meigs' grand plans. Painters from Germany and England, ornamental plasterers and sculptors from France, and carvers from Italy were drawn to Washington, where Meigs was overseeing the largest building project of the era. It was a perfect example of America benefitting from old-world troubles.

The first mural decoration in the Capitol extension was undertaken by Brumidi at the end of January 1855 when he began drawing the cartoons for *Calling of Cincinnatus from the Plow.* Meigs allowed the artist to paint a sample of real fresco in the east lunette of his office, a room later assigned to the House Committee on Agriculture. In one of the great unselfish acts of George Washington's life, he had left his farm to defend his

House Committee on Agriculture Room

In the lunette on the far wall is Brumidi's first Capitol fresco, *Calling of Cincinnatus from the Plow*. The artist later painted *Calling of Putnam from the Plow to the Revolution* on the opposite wall. Other paintings in the room include allegorical figures representing the four seasons, a view of the McCormick reaper, and portraits of Washington and Jefferson, two farmer presidents.

The room is currently occupied by the House Committee on Appropriations. (1995 photograph.)

country at the outbreak of the Revolution and, thus, was compared to Cincinnatus, the fifth century B.C. Roman soldier who abandoned his fields to save Rome. The patriotic lesson was clear, and Meigs considered Cincinnatus an appropriate subject for the House Committee on Agriculture.

With snakes slithering around and a constant stream of visitors coming and going, Meigs' office was full of unwanted distractions for the artist working on a scaffold at one end of the room. Brumidi started the fresco on February 14, assisted by A. B. McFarlan, foreman of the south wing plasterers. The rough coat of plaster was wet several times a day for a few days before a small, smooth patch of lime and sand about a yard square was laid in one corner. Brumidi roughened the surface with a broom, sprinkled it with water, and proceeded to lay on colors that were formed with lime into a paste. At first the colors were brilliant, too brilliant in Meigs' view, but the artist assured him they would become less intense as the plaster dried.

Over the next month, sightseers came to Meigs' office to witness the making of a work of art unlike anything else in America. Among those who came was Senator Stephen Douglas, "The Little Giant" from Illinois. After inspecting the painting's progress Douglas congratulated Meigs and told him how pleased he was at the prospect of frescoed walls. When Richard Stanton appeared at the door in the company of Thomas Walter on March 7, 1855, Meigs was a bit startled but greeted his guest cordially. The recently retired congressman, whom Meigs knew was no friend of military men, seemed uncomfortable at first but became relaxed and even animated once he saw Brumidi's nearly complete painting. He climbed on the scaffold to have a closer look and soon declared his complete approval of it. Walter later told Meigs that the painting had won Stanton over and he would be a friend henceforth. Such praise from the likes of Stanton and Douglas encouraged Meigs to proceed with his decorating plans.

Brumidi finished his painting in mid-March. The last element that he completed was the face of a corner figure of a child gazing up at Cincinnatus. Meigs' wife, Louisa, asked the artist to use their son Monty as a model, a request he was happy to oblige. Rather than creating a portrait, however, Brumidi studied the boy's character, which he then sketched into the child's face.[95] Completed in four weeks, *Calling of Cincinnatus from the Plow* earned Brumidi a place on Meigs' payroll. On March 20, 1855, he entered government service commanding the highest wage allowed by the supervising engineer—eight dollars a day. While he would eventually also design furniture and architectural elements, such as mantels and stair railings, Brumidi's name soon became synonymous with fresco decorations in the Capitol.

Just before Christmas of 1855, sculptor Henry Kirke Brown showed Meigs photographs of an unsolicited design he created for the second pediment, featuring a central figure of America with outstretched arms welcoming and protecting all who come to these shores. A distressed foreigner crouched at the feet of the central figure while other figures in contemporary dress engaged in various occupational activities. The figure of a slave contemplating his fate, however, was a bothersome element that doomed the composition. While admittedly "truthful," it was too controversial to immortalize in marble. Meigs told the artist that it "must absolutely go out."[96] Brown thought the slave might "awaken a national feeling in regard to its importance," yet Meigs understood that awakenings were not what Congress expected in the Capitol's artwork.[97]

In a few weeks Brown was back with a second design. Again he placed an allegorical figure of America in the central position alongside a distressed foreigner. New figures included a citizen voting at the ballot box, a farmer, a fisherman, a hunter, an Indian with the spoils of the hunt, a California '49er with a pick ax and pan, a little boy playing with a toy boat, and a weather-beaten navigator. With only one allegorical figure to ponder, there was little in the composition to confuse the average viewer. Despite the improvement, however, Brown's second design was also rejected. Failure to land a lucrative contract prompted the disappointed sculptor to explore ways to remove the art program from Meigs' control.

Erastus Dow Palmer of New York was the next artist to offer designs for the second pediment. In 1856, he made a group of statues depicting the landing of the pilgrims, which was highly praised in his local newspaper, the *Albany Journal.* The central figure, Elder Brewster, was depicted with

outstretched arms giving thanks for safe passage. A kneeling figure of Rose Standish and a standing figure of Miles Standish were positioned to one side of Brewster, accompanied by a young soldier and a mother and child. On the opposite side were "sturdy" yet nameless puritans of differing ages attended by such devices as axes, bibles, barrels, boxes, leafless trees, two wolves, and a crouching Indian. The *Journal* wrote that the scene was not "disfigured by any so-called 'classical' adjuncts often resorted to by modern sculpture."[98]

While Palmer's pediment design was supported by many of New York's most influential politicians, it was presented during the early days of James Buchanan's administration, which did not feel inclined to support the arts unless it meant political gain. As an administration with strong Southern leanings, it was not keen on Palmer's New England subject matter either. A friend of the sculptor offered a compromise in which he suggested putting Crawford's *Progress of Civilization* in the central pediment (at the expense of Persico's group) and placing Palmer's New England scene in the northern pediment. That would leave the southern pediment available for a depiction of the settlement of Jamestown, Virginia.[99] Although the suggestion was ignored, it was another indication of the role that sectionalism played in different aspects of American life during the period. Palmer's sculptural group was refused by the cabinet, but he was granted $1,000 for his troubles.[100] The second pediment would stand empty until 1916.

Thankfully, it was easier to commission a statue for the top of the new dome. Two months after Congress authorized the new dome, Meigs wrote Crawford telling him about the project and asked him to make a sketch for the statue. Walter's general design showed a figure on top but did not dictate the meaning, appearance, or nature of the statue. Meigs was unsure who or what the statue should represent. At one time he suggested a figure of Mercury, but that did not appeal to Crawford. The engineer could not tolerate another statue of George Washington, nor would he repeat the allegorical figure of America already designed for the pediment. A figure of Liberty was his best idea. He sent the request to Rome without a copy of the dome's design or any other indication that the figure was destined to stand upon a tholus, or lantern.

With his usual speed, Crawford responded with a design called *Freedom Triumphant in War and Peace,* an allegorical subject perfectly suited to military taste. Like personifications of Liberty, Virtue, Charity, or Philosophy, which are all feminine nouns in romance languages, Freedom was represented by a female figure. (Had the subject been War or Fire, the male form would have been called for.) Freedom wore a wreath of wheat and laurel and held an olive branch, a sword, and the shield of the United States, making Crawford's message clear and simple:

> I have endeavored to represent Freedom triumphant—in Peace and War. . . . In her left hand she holds the olive branch while the right hand rests on a sword which sustains the Shield of the United States. These emblems are such as the mass of our people will easily understand. . . . I have introduced a base surrounded by wreaths indicative of the rewards Freedom is ready to bestow upon distinction in the Arts and Sciences.[101]

The design was received on July 12, 1855, along with word of Crawford's fee: $3,000. While Meigs admired its grace, he had to send the design back so that the artist could add a transitional element between the statue and the tholus. A photograph of Crawford's second attempt was received on January 11, 1856. The artist took the opportunity not only to introduce a transitional pedestal but also to revise the statue itself. The figure now held a sheathed sword in her right hand and a laurel wreath resting on the shield of the United States in her left. And perhaps forgetting Davis' earlier objections, Crawford changed her headgear to a liberty cap. The sculptor's stay in Rome undoubtedly isolated him from the domestic passions that were stirred up by the mere mention of slavery, freedmen, or emancipation.

Meigs sent photographs of the two designs to the secretary of war. In a few days, Davis returned them with his general approval of the second design, commenting on its grace and power. But he still did not like the liberty cap. Opposed to the idea that American freedom should be portrayed by a freed slave, Davis complained that the liberty cap's

> history renders it inappropriate to a people who were born free and would not be enslaved

Crawford's First Design for *Freedom*
1855
Library of Congress

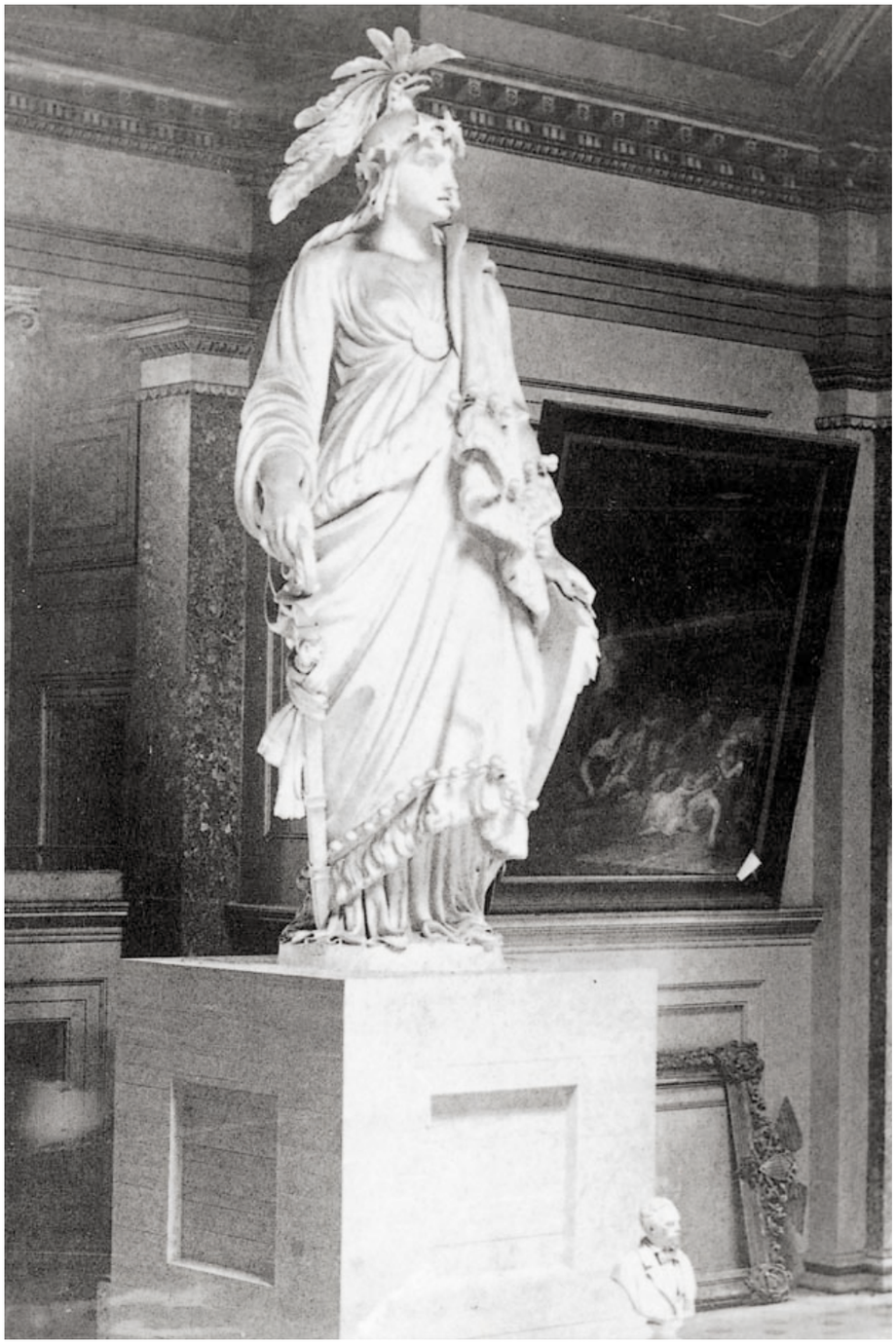
The original design for *Freedom* is shown here in a period photograph.

Second Design for *Freedom*
1855
Library of Congress

Although the general design was approved, Jefferson Davis insisted that the headdress change from a liberty cap to a helmet.

Plaster Model of *Freedom*

To satisfy the secretary of war, Crawford replaced the liberty cap with a helmet composed of an eagle's head and feathers. The model of the statue is shown here while it was on display in the old hall of the House after the room was converted into National Statuary Hall. (ca. 1871 photograph.)



> . . . its use, as the badge of the freed slave, and though it should have another emblematic meaning today, a recurrence to that origin may give it in the future the same popular acceptation which it had in the past.
>
> Why should not armed Liberty wear a helmet?[102]

The secretary referred the matter back to the artist and gave him final say on the issue. This time Crawford accommodated the wishes of his patrons and designed a helmet to be worn by the figure of Freedom. On March 19, 1856, the artist sent a photograph of the revised design with a letter to explain the new headdress as well as other, more subtle changes:

> I read with much pleasure the letter of the Hon. Secretary and his remarks have induced me to dispense with the 'cap' and put in its place a Helmet, the crest [of] which is composed of an Eagles head and a bold arrangement of feathers suggested by the costume of our Indian tribes. I have placed upon the head of the Statue the initials of our country and the drapery is so arranged as to indicate rays of light proceeding from the letters.
>
> No other explanation is necessary unless it be to say that I think the present design more original than the previous ones, and more *american.* I hope the Hon. Secretary will look upon it as a proof of my desire to merit the continuation of his confidence in my ability.[103]

In the same letter Crawford mentioned in an offhanded manner that this statue would be about two feet taller than his previous designs, standing eighteen feet, nine inches. (Without realizing it, the sculptor thereby forced the architect to revise the upper parts of the dome design to accommodate the larger statue.) He also wrote that the final three figures for the Senate pediment were ready to be shipped. In a final bit of news, he told Meigs that former President Fillmore had dropped by his studio in Rome and "expressed his unqualified approval of the Pediment and his pleasure in seeing the encouragement given to the Fine Arts by the present government."

Meigs immersed himself in thoughts of art and was always on the lookout for ways to use painting and sculpture in the Capitol extension. He sought to effect the harmonious interplay of those arts with architecture in the creation of a unified and artistically whole composition, unlike anything yet built on this side of the Atlantic.

Meigs foreshadowed the time when architects would routinely command teams of painters and sculptors laboring on decorations built simultaneously with the architecture. Architects of the late nineteenth and early twentieth century habitually employed the services of painters and sculptors, as well as cabinet makers, upholsterers, and landscapers, but in Meigs' day such teamwork on such a scale was far from usual.

BACKLASH

At the opening of the 34th Congress in December 1855, Davis transmitted Meigs' annual report to the House and Senate as part of the War Department's yearly accounting of its activities. It took more than five months for the House to officially notice the report, and that attention would not be particularly welcomed. The problems in Kansas were too worrisome to give legislators the leisure to consider matters at the Capitol extension. Hurriedly settled by both abolitionists from New England and competing pro-slavery emigrants from Missouri, Kansas was a state with a small but belligerent population, few peacemakers, and, at times, two governors and two legislatures. Weak and indecisive, President Pierce allowed matters to fester without restoring order to the plains of "Bleeding Kansas." Speeches in Congress packed the galleries with the anxious and idle alike.

In the spring of 1856 Edward Ball, a Whig representative from Ohio, asked the House to put Kansas aside for a moment and allow him to inquire into Captain Meigs' business practices. He introduced a resolution asking for an extensive accounting of all the funds spent on the Capitol and Post Office extensions. Ball was the chairman of the House Committee on Public Buildings and Grounds and a leading opponent of the Pierce administration. He intended to expose what he saw as fiscal irresponsibility in the War Department. Ball inquired about the cost of the marble and how much the changes to the original specifications had cost. He wanted a full accounting of the brick business; the number of horses, ox carts, carriages, wagons, and buggies used by the Capitol extension office; and all the shops, machinery, steam engines, turning lathes, stone saws, and all other tools belonging to the government. He asked how much was spent to remove the old dome and what contracts had been made for the construction of the new one. He inquired about the number of sculptors, modelers, and bronze workers employed and wondered under what authority or law they had been hired. He demanded a list of names of all persons (except laborers) employed on the Capitol extension and their compensation. And last, Ball called for copies of every contract ever made for every part of the Capitol extension, information regarding contract advertisements, and statements whether the lowest bid was accepted and, if not, why not. Nothing Ball could have added would have made his requirements more sweeping or comprehensive. To comply with the extraordinary demand would require a mountain of paperwork, an army of clerks, and the patience of Job. Ball insisted that such a report was necessary "so that it may be seen how the law has been disregarded and the public money wasted."[104]

Ball also condemned the sculpture being carved in shops filled with Germans and Italians. In his judgment, America's Capitol was "made to play the poor part of a wretched imitator of the broken-down monarchies in the Old World." Moving to painting and the crush of sightseers in the Agriculture Committee room, which his committee was using temporarily, Ball declared:

> There is in a room, over yonder, in the south wing, known as the frescoed room, now, by your favor, Mr. Speaker, occupied by the Committee on Public Buildings and Grounds—that is, when permitted to do so by the crowd of persons attracted there from day to day—a variety of pictures, some of them got up in bad taste; but no matter for that now; take them all in all, they are very beautiful to look at, but the great mass of the people of the country would think it strange inconsistency to expend $3,600 for such pictures, or $500 for the beautiful marble mantel which is there, in an Administration which can not spare one dollar to be expended in clearing out obstructions to navigation from the mouth of the Mississippi, or the lakes of the Northwest—also important to the commerce of the country.[105]

After touching on a few other subjects, the Ohio legislator came to the matter of the unfinished dome. He had distinctly understood that the new dome would be finished before the opening of

the 34th Congress. He had also understood that it would cost $100,000. Now it was clear that he had been duped: the cost would be at least a million dollars and it would take many years to finish. The fault, Ball insisted, was with military superintendence, and he declared that it would be better to board it up rather than continue with the wasteful, extravagant, and possibly illegal construction. Soon after Ball took his seat the resolution of inquiry was adopted by the House of Representatives.

Meigs thought it ironic that Ball's resolution really accused him of "building too strong and too well."[106] But just before he could begin to prepare his reply he fell dangerously ill. For more than five weeks he was confined to his home, taking calomel and quinine to ease what he called a "bilious remitment," a form of typhoid.[107] His father, a physician, and his mother were called from Philadelphia to help nurse their ailing son and to assist army doctors who were also in attendance. Although pained by severe headaches, Meigs never lost consciousness and wrote in his journal that he signed checks throughout his illness. Still recovering, he left on a trip north during the first week in July, visiting his family in Pennsylvania, looking at paintings in New York, and inspecting the quarry in Massachusetts. When he returned to Washington, he appeared to Walter to be "all cocked and primed for business."[108]

In his response to Ball's questions, Meigs accounted for the funds expended upon various components of the extension project and explained why the work was so far over budget. The original estimate developed in 1851 was for a plainer, less artistically decorated building. To illustrate the point, Meigs tallied the cost of sculpture commissioned for the extension. Crawford's bronze doors would cost about $13,600 each, while the Columbus doors by Rogers, which were slightly larger, would cost about $14,000. The doors could have been made more cheaply if the sculpture were cast in pieces and screwed to wooden panels, as was done at Walhalla in Munich or at the Madeleine in Paris. But the Capitol's doors were to be made like the most perfect ornamental doors in the world, those at the Baptistry in Florence, where everything—the figures as well as the panels—was cast as one piece.[109]

One of Ball's inquiries asked about the cost of the elaborate frames for the windows on the second, or principal floor. These frames consisted of pediments supported by consoles carved with Grecian flowers and draped with acanthus leaves. Like many details of the outside marble work, the frames were similar in form and character to those of the old building but were more deeply and boldly carved and more elaborately designed, using elements borrowed from Grecian architecture. The original specifications stated that Provost & Winter should copy the manner by which the frames in the old building were made, but Meigs altered that provision in order to use larger blocks of marble. The change resulted in doubling the cost of the window frames (from $822 to $1,660), yet Meigs claimed that their stability and durability were increased fourfold. The engineer answered all of Ball's questions with confidence, backing each assertion with minute accountings from the project's well-kept records.

In another report Meigs stated that an additional $2,835,000 would be needed to finish the extension. Of this amount, he needed $750,000 immediately to carry on until a regular appropriation was made. The monthly expenditures on the extension averaged between $80,000 and $90,000, and work would stop unless an immediate infusion of cash was given by Congress. In response, Ball introduced a provision to remove the Capitol and other civilian projects from military control, and Meigs began to feel glum, thinking his days at the Capitol were numbered.[110] He cheered up, however, upon learning of stiff opposition to Ball's scheme in the Democratically controlled Senate. There a bipartisan group of senators, James A. Pearce of Maryland, Lewis Cass of Michigan, William H. Seward of New York, and Robert M. T. Hunter of Virginia, defended Meigs "with strength and vigor."[111] On August 15, the Senate gave what Meigs referred to as "3 separate votes of confidence."[112] Having already defeated Ball's plan to remove him from the public works, the Senate voted an additional $750,000 for the Capitol, $100,000 for the dome, and $500,000 for the aqueduct. There had been some discussion about the eventual cost of the extension and dome, but there was considerable support in the Senate for these projects irrespective of costs. Stephen Douglas of Illinois thought the purpose of the dome project was to build the finest one in the world, and he

was willing to see the project through to the end. Seward backed the extension project as a symbol the nation would continue whole and united. It was perhaps the first time that the continuation of either the Capitol extension or the dome was viewed as a symbol that the nation would continue. Meigs reported in his journal that the senior senator from New York was initially

> opposed to the commencement of the Capitol extension, but he found at that time base and weak men talking about the dissolution of the Union, and he had seized upon the Capitol extension and voted for and encouraged it as a reply to all such weak and foolish talk. He thought now that, when the same foolish words were being spoken, it was a sight well worth its cost to see the Congress, in the midst of all this agitation, going on quietly and voting a million for completing the Capitol of this Federal Union and thus showing the little regard they had for the foolish fears of those who talked about its end.[113]

In another show of support, Congress appropriated $20,000 to commission works of art under the authority of the Joint Committee on the Library. Meigs had encouraged such acquisitions by furnishing scores of niches calling for statues and vast walls begging for paintings. This money given to the Library Committee was the first effort to fill those vacant spaces. On August 18, 1856, the engineer wrote to a committee member to suggest filling the niches with statues of distinguished legislators and hanging great history paintings above the landings of the four monumental stairways. The first painting should be done by "the most eminent painter now living whether native or foreign." Thus, it would serve as a standard of excellence for all the paintings to follow. He recommended that the committee consider hiring a famous French artist and named three possible candidates, including Horace Vernet; considering the pivotal French participation in the final battle in the American Revolution, Meigs noted that the siege of Yorktown would be an appropriate subject for Vernet's brush. The committee wrote Vernet asking if he would paint a picture for $10,000. Vernet, however, was unwilling to accept the commission.[114]

The appropriation remained unspent for two years while the committee considered its next move. In 1859, it commissioned two statues from Hiram Powers, one of Benjamin Franklin for the House wing and one of Thomas Jefferson for the Senate wing. Powers had been offered commissions before, but his only work in the Capitol was a bust of Chief Justice John Marshall commissioned in 1836. American artists remained critical that his work and the work of other native-born artists were not better represented in the Capitol.

HARMONY'S FINAL DAYS

Meigs finished removing the last stones from the old dome during the fall of 1856. He marveled at how easily the steam-powered derrick lifted stones weighing three tons and set them down in strong wagons to be hauled away. (Meigs figured that it cost forty cents a cubic yard to remove the old stonework.[115]) He was also impressed with the speed at which drawings for the extension and dome could be copied by John Wood, a photographer hired on September 30, 1856, at $3.50 a day. By using photography, Woods copied drawings far more rapidly than Walter's draftsmen. He also recorded the work's progress in prints pasted into large volumes for office reference. Photographic albums were sent to libraries, museums, and schools both here and abroad, to satisfy the world's curiosity about America's great construction project. West Point was the first institution to receive photographs from the captain of engineers (class of '36). Meigs intended to send additional sets of photographs to Crawford for himself and the Academy of Rome.[116]

Throughout his service at the Capitol Meigs kept up a regular correspondence with the press and others, offering explanations about the works or responding to misinformation appearing in print or elsewhere. He wrote Joseph Henry a stern letter protesting his paper entitled "The Science of Sound applied to Public Buildings," read before the annual meeting of the American Association for the Advancement of Science. Henry's paper implied that the revised floor plans of the Capitol extension were the product of the commission on acoustics. Meigs wanted it made clear that he was the sole author of the plans, which he called "the

first intelligent plans for public buildings." The commission had merely approved them.[117] He did not wish to be placed in a subordinate position or appear to have lamely followed the superior wisdom of his fellow commission members. "It is of importance to me," Meigs wrote emphatically, "that I have the credit of these designs."[118]

In November 1856, Meigs wrote the last annual report that he would submit to Davis.[119] It was somewhat longer than usual, but filled with the captain's usual detail and brimming with confidence. The outside marble work was up to the architrave. Much of the stonework for the connecting corridors had been wrought and was in storage until needed next spring. It was thought best not to begin the corridors until a long recess allowed noisy construction to proceed with vigor. There was considerable progress to report on interior marble work as well. All the shafts, capitals, and pilasters in the hall of columns were set, the Senate vestibule was almost finished, and the private and public staircases were begun. Columns for the House vestibule and the Senate retiring room were carved but not yet installed.

Naturally, Meigs also said much about the artwork. All of Crawford's figures for *Progress of Civilization* were either in hand or on their way to Washington. Brumidi's frescoes in the House Committee on Agriculture room were finished, and Meigs asserted that he intended to carry out the same style of decorations in other rooms. The ceiling in the Senate Committee on Naval Affairs room (modern day S–127) had been painted in distemper and fresco and the walls in oil. "The decoration of this room," Meigs instructed his readers, "is in the style derived from the remains of ancient painting in the baths of Titus and the excavations of Pompeii. Panels on the walls are being filled with pictures of our naval battles." Other rooms were in the hands of a small band of decorators, who worked in a variety of styles and media.

At the conclusion of his report, Meigs wrote that almost $800,000 had been spent on the Capitol extension during the 1856 building season. Even after that large expenditure, more than $700,000 remained to his favor in the treasury. Without giving details, Meigs requested $900,000 to continue another year. Congress granted the request without debate, and Pierce signed the appropriation on the last day of his administration.

A second report gave an account of the progress made on the dome during 1856.[120] The last part of the old inner dome was removed following the adjournment of Congress in August. Once the rubble been hauled away, the remaining stone wall above the interior cornice was repointed with hydraulic cement and new brickwork laid with hoop iron reinforcement. The thirty-six columns of the lower peristyle had been delivered and the cantilevering brackets were about to be cast. Of the $200,000 appropriated for the dome in 1855 and 1856, $157,000 remained in the account. Meigs asked for and received an additional $500,000 for the next year's work.

Congress did not wish the lack of money to be used as an excuse for not finishing the extension promptly. It granted all that Meigs asked for, but still wanted to know how much money would be required and how much longer it would take before the wings were finished. When the secretary of war asked him about the completion date, Meigs estimated that it would require two more years to finish the wings. He calculated that 220,000 cubic feet of marble was still needed and proposed yet another trip to the quarry to see about its expeditious delivery. Meigs left Washington for Massachusetts on November 18, 1856, determined to press the importance of faster delivery of marble and to satisfy himself that next year's supply of stone would be adequate. While in Philadelphia, he received a letter from Walter with news that a fire had damaged his office. It started when a spark from a hot-air furnace under the floor ignited wooden planks, which were used as a floor covering until the tile arrived. Many of Walter's drawings, framed pictures, photographs, artists' sketches, drawing boards, instruments, and valuable papers were lost. Luckily the fire was contained in one room and did not damage the outside marble.

Upon his return, Meigs inspected his damaged office and went on a tour of the extension. In the Naval Affairs Committee room, he was disappointed with the work of George West, a temperamental artist who was painting marine scenes on the walls. West did not appreciate Meigs' criticism but declared that he would erase the paintings if naval men and artists agreed they were bad. Soon

West quit in a huff, saying that it was his misfortune to be born an American instead of English, Irish, Italian, or German.[121] Meanwhile, other rooms were being finished and handed over to committees anxious for meeting space. Because the central heating apparatus was not yet working, Meigs set up coal stoves as temporary measures in these rooms. The room intended for the House Committee on Territories (modern day H–128) was reported finished, painted, and decorated on January 12, 1857, and the Judiciary Committee room was suitable for use (although not yet decorated).

Near the end of the Pierce administration Meigs asked John Wood to print twenty-seven large

Senate Committee on Naval Affairs

Of all the highly decorated rooms and corridors by Brumidi and his fellow artists, this one appeared the most foreign to American eyes. Here, murals unearthed in Pompeii were the source of inspiration.

The room is currently occupied by the Senate Committee on Appropriations. (1995 photograph.)

photographs, which included Crawford's models for *Progress of Civilization* and views and drawings showing the Capitol extension and new dome. He sent these to Davis as memorials of the great projects they directed.[122] Davis was returning to the Senate as soon as the next administration took over on March 4, 1857. There he would assume the chairmanship of the Committee on Military Affairs, a position he would use to defend military control of civilian construction projects. Pierce's lackluster term had been a great disappointment to his fellow Democrats, who denied him renomination. Instead, they picked James Buchanan of Pennsylvania, who had spent most of the time during the Kansas-Nebraska troubles quietly serving as minister to Great Britain.

On March 24, 1857, ex-President Pierce went to see Meigs at the Capitol and was disappointed to learn that he was in Georgetown attending to aqueduct business. He sat at Meigs' desk and wrote a letter to express his appreciation for the engineer's "personal kindness and friendship."[123] The former president was about to leave Washington with his wife to spend the month of April in Philadelphia. Pierce asked Meigs for a letter of introduction to his father, who might help restore Jane Appleton Pierce's health. (She had suffered from chronic depression since witnessing the accidental death of her young son Bennie in 1853.) Upon discovering the letter on his desk, Meigs wrote his father asking him to return the "kindness and confidence" that had supported him for the last four years. The president earned his family's gratitude along with the "affection" of the American people.[124]

Meigs' sympathies for the former president were understandable. During the past four years he had enjoyed the full confidence and support of the president and the War Department, but those days were over. Buchanan was now president and a new secretary of war, John B. Floyd, was in charge. A former governor of Virginia, Floyd saw the War Department as little more than a tool to reward the party faithful and to enrich his friends. Quarrelsome, corrupt, and duplicitous, he would help sink the Buchanan administration to a level of unprecedented incompetence and impropriety. Peaceful times at the Capitol were at an end.

Statue of America
by Thomas Crawford
1855

The central figure of Crawford's *Progress of Civilization* was a personification of America flanked by a rising sun and an eagle. Despite Jefferson Davis' initial objection, the liberty cap worn by the figure of America was retained in the final design.

This photograph was taken in Rome soon after Crawford completed the model. A similar photograph was given to Jefferson Davis upon his retirement from the War Department in 1857.